THE INTERNATIONAL YEAR BOOK

A COMPENDIUM OF THE WORLD'S PROGRESS DURING THE YEAR

1902

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PREFACE.

In the preparation of the INTERNATIONAL YEAR BOOK constant effort has been made not only to state fact accurately and reflect comment fairly, but, what is more difficult, to set forth both fact and comment in their true perspective. The present volume, covering the year 1902, shows, without sacrifice, the editors believe, a greater degree of compression than its predecessors; in concise and logical treatment an advance has been made that renders the book especially useful. Though the plan originally adopted for this series of annuals has been virtually adhered to, each succeeding volume in various particulars has shown some improvement in presentation and scope. Two such departures that may be pointed out in the volume for 1902 are the grouping of Congressional Representatives under that sub-head in the article UNITED STATES, rather than placing them with their respective States, and the itemizing of the State revenues and expenditures, by which the sources and purposes as well as the volume of State moneys are readily seen. The editors are desirous of increasing the usefulness of the work and will welcome suggestions to that end.

A preface cannot be an adequate guide to the numberless topics of interest treated in a volume of this nature. There may be mentioned, however, a few of the more important events of 1902; and these, in some degree, will serve to show how conspicuous a position that year holds in contemporary history. In the UNITED STATES the subject of keenest general interest was the ANTHRACITE COAL STRIKE, provoking Presidential intervention, which in the future may be turned to as an important precedent, and drawing more general attention both to TRADE UNIONS and to TRUSTS. Further thought concerning the problems of organized labor and of organized capital was occasioned by other STRIKES of the year and by the progress of SOCIALISM and the accomplishment of the SHIPPING MERGER. The year was notably a prosperous one. The articles BANKS and FINANCIAL REVIEW show the most important financial conditions and movements, while industry is treated, aside from the articles on the States, under MANUFACTURES and such special titles as IRON AND STEEL, COTTON, SUGAR, etc. Agricultural production, as well as the progress in cultural methods, is treated under AGRICULTURE, DAIRYING, HORTICULTURE, and in the articles on the various crops. The year 1902 saw the establishment of civil government in the Philippines, and, at home, in the sphere of MUNICIPAL GOVERNMENT, the disclosure of most vicious corruption.

In international affairs there was a marked development of already existing tendencies. INTERNATIONAL ARBITRATION was more firmly established. The Anglo-Boer War came to an end and British power in the TRANSVAAL and other parts of South Africa increased. There were concluded an Anglo-Chinese treaty of commerce affecting CHINA proper, and an Anglo-Japanese treaty of alliance designed to maintain generally the prestige of GREAT BRITAIN and JAPAN in CHINA and COREA, while in menace to such prestige was the attitude of RUSSIA in MANCHURIA. Russian designs against PERSIA and British interests there continued to manifest themselves, as well as those of FRANCE against SIAM. While RUSSIA and FRANCE practically reaffirmed their alliance, as an answer to the Anglo-Japanese treaty, FRANCE and ITALY and FRANCE and SPAIN noticeably furthered their cordial relations. The ill-feeling between the English and German peoples showed little abatement in 1902, although at the end of the year the British and German governments were allied in coercing VENEZUELA. The troublesome question of the TRIPLE ALLIANCE was settled by a renewal of that pact. Ominous troubles in the BALKAN PENINSULA,

and especially in TURKEY, continued. Conspicuous in 1902 was the effective position assumed by the UNITED STATES.

In the internal affairs of foreign countries there were many events worthy of note—some for passing but compelling interest, others for far-reaching significance. Edward VII. was crowned and Alfonso XIII. enthroned; in GREAT BRITAIN the most vigorously debated question of the year was the quasi-denominational Education Bill, which was enacted, and in SPAIN the proposed anti-clerical reforms, which failed of achievement. In FRANCE, however, under the direction of a new ministry, anti-clerical legislation was rigorously enforced. In GERMANY the Tariff Bill, and in AUSTRIA-HUNGARY the renewal of the *Ausgleich* were the prominent features. The threatening cry of united labor was heard in FRANCE, SPAIN, ITALY, BELGIUM, AUSTRIA-HUNGARY, SWEDEN, and even RUSSIA. RUSSIA, indeed, saw bloody assaults upon the established régime, but in FINLAND the government's policy of "Russification" went steadily on. Almost simultaneous with Alfonso's enthronement was the establishment of his lost colony, CUBA, as an independent republic.

The progress of educational institutions in 1902 and of the science of education itself is shown in the articles on many of the leading colleges and in those under the headings UNIVERSITIES AND COLLEGES and EDUCATION IN THE UNITED STATES, while a statistical treatment of schools is given under SCHOOLS, NORMAL SCHOOLS, and PROFESSIONAL SCHOOLS. A comprehensive treatment of religious progress has been subdivided under the titles of the various denominations, while missionary work in particular is treated under MISSIONS.

In science must be noted the stellar researches of Kapteyn and the light-pressure theory of Arrhenius, in ASTRONOMY; in PHYSICS, the study of radio-active substances, which involves many problems for the further investigation of scientists; the advances made in CHEMISTRY, MEDICINE, and BIOLOGY; the continued effort to solve practically the problem of AERIAL NAVIGATION; and the remarkable progress of WIRELESS TELEGRAPHY. Among the notable engineering topics is the great DAM at Assuan and the GALVESTON SEA WALL. The articles on ARCHÆOLOGY and ANTHROPOLOGY have features of unusual interest. The year 1902 was unique in the number and severity of its volcanic and seismic disturbances. A treatment of these may be found under VOLCANOES and EARTHQUAKES and in the articles on the countries where they occurred, especially MARTINIQUE, ST. VINCENT, and GUATEMALA.

Especial care has been taken in preparing the department of biography. The names of many living men who were prominent in 1902 are included. Among the scores of notable dead may be mentioned CECIL RHODES, KOLOMAN TISZA, Lord DUFFERIN, THOMAS BRACKETT REED, RUDOLF VIRCHOW, FREDERICK TEMPLE, EUGENE AUGUSTUS HOFFMAN, T. DE WITT TALMAGE, WILLIAM THOMAS SAMPSON, BRET HARTE, and EMILE ZOLA.

To this YEAR BOOK is appended an index of the titles in the five volumes 1898-1902.

FRANK MOORE COLBY.
EDWARD LATHROP ENGLE.

New York, April 28, 1903.

MAPS.

ILLUSTRATIONS.

The

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The International Year Book

1902

ABEL, Sir FREDERICK AUGUSTUS, English chemist, died in London, September 6, 1902. He was born in London, July 17, 1827, and after study at the Royal Polytechnic became a student at the Royal College of Chemistry which was opened in 1845 under the direction of A. W. Hofmann, in the endeavor to establish in London a counterpart of Liebig's famous school at Giessen. In 1851 Abel succeeded Faraday as professor of chemistry at the Royal Military Academy, and in 1854 he was appointed to the newly created office of Ordinance Chemist, later styled Chemist to the War Department. During his long tenure of this office (until 1888), which was identical with the development of the British artillery and rifle systems, he effected marked improvements in the manufacture and application of gun cotton; and as president of a special committee on explosives (1888-91), he conducted investigations which resulted in the patenting, with Professor Dewar, of the substance known as "cordite." At various times he was president of the British Association, the Chemical Society, the Society of Chemical Industry, the Institute of Chemistry, and the Institute of Electrical Engineers; and at the foundation of the Imperial Institute in 1887 he was made organizing secretary and general director. He was awarded a medal in 1887 by the Royal Society, of which he became a fellow in 1860, and in 1897 he received the Bessemer medal from the Iron and Steel Institute. In 1883 he was knighted and ten years later was created a baronet. Among his publications are *Gun Cotton* (1866); *The Modern History of Gunpowder* (1866); *On Explosive Agents* (1872); *Researches in Explosives* (1875); *Electricity Applied to Explosive Purposes* (1884).

ABRASIVES. See MINERAL PRODUCTION.

ABYSSINIA, an independent country of eastern Africa, separated from the sea by British, French, and Italian territory. The capital is Adis Ababa.

Area and Population.—The estimated area of Abyssinia proper, including the four provinces of Tigré, Shoa, Amhara, and Godjam, is about 100,000 square miles, and dependent territories are estimated at about 50,000 square miles. On May 15, 1902, agreements were signed determining the boundaries of Abyssinia with the Egyptian Soudan and Eritrea. The estimated number of inhabitants, who in large part profess a perverted form of Christianity, is about 3,500,000.

Government, etc.—The present emperor, Menelek II., who as king of Shoa became ruler of all Abyssinia in 1889, maintains a sort of feudal political system with the *rases*, or princes, under whom are governors of districts and chiefs of villages. Besides territorial troops and irregulars there is an army of 150,000 men made up of provincial contingents. Revenue is derived chiefly from tithes and taxes on commodities. Menelek has a monopoly of the ivory trade and keeps the greater part of the gold output. There is also a revenue from import and export duties.

Industries and Commerce.—The principal industry of the inhabitants is the raising of cattle and sheep. The greater part of the imports consists of cotton goods manufactured in the United States; other imports are woollen goods, cutlery, glassware, provisions, matches, and arms. The exports include coffee, civet, wax, gold, and ivory. For the fiscal year 1900 the trade of Harar and Adis Ababa was estimated at 6,799,650 dollars for imports and 4,947,000 dollars for exports. (The Abyssinian silver dollar in 1902 was worth about forty-seven cents in United States money.)

In the summer of 1902 it was reported that Menelek had sold to an English syndicate for £2,000,000 the Baro gold mines, which it was believed he had promised to grant to French companies, and that he then determined to grant no more concessions to Europeans. The gold-mining grants extend for about 200 miles on both banks of the Baro River.

Communications.—The railway which is under construction from Jiboutil, on the coast of French Somaliland, to Harar, 186 miles distant, was completed to the 125th mile at the end of 1901. It is thought that this line may be extended to Adis Ababa and ultimately to the projected Soudan section of the Cape-to-Cairo railway. (See SOMALILAND.) There are telegraph and telephone connections between Adis Ababa and Harar. The telephone line, which is much used, was at first frequently cut, but such mischief was stopped by a proclamation of Menelek that any person offending thus would be punished by having his hand struck off, and the district in which injury was done condemned to pay a heavy fine. Early in 1902 it was reported that Menelek had ordered the rapid completion of telegraph and telephone lines between Adis Ababa and Massowah, on the coast of Eritrea.

It is highly probable that were it not for the vigor and shrewdness of Menelek's statesmanship European influence, which is maintained at Adis Ababa by representatives of Great Britain, France, Italy, and Russia, would be a far more positive element in Abyssinian politics than it is at present. The country is of especial interest to Great Britain as one of the sources of the Nile; to France it is the goal, by way of French Somaliland, of commercial enterprise, which if ever the opportunity offers will develop into political activity for the territorial union of her eastern and central African possessions, while Russia, in perhaps not too positive and open a manner, stands ready to second France in such a confounding of the British programme in Africa; and Italy, though unforgetful of Menelek's check to her colonial aspirations in 1896, seems to crave Abyssinian influence and privileges. In 1902 documents published through the indiscretion, it was believed, of Signor Martini, governor of Eritrea, revealed unexpected relations between Italy and Abyssinia. In the preceding year it appears the Eritrean government secured rights to open to Italian enterprise the Abyssinian country south of the Mareb River; and it was also stated that certain lands bordering the eastern Soudan, rights in which Menelek had formerly granted to the Anglo-Egyptian government, had been given over to the Italian authorities. But notwithstanding these disclosures or the special embassy, including the governor of Adis Ababa and the chief of the exchequer, sent by Menelek to St. Petersburg in the summer of 1902, the emperor's relations with Great Britain seemed to continue very friendly. An Anglo-Abyssinian treaty concluded at Adis Ababa on May 15, 1902, was ratified October 28. It obtains for the Anglo-Egyptian government the lease of territory near Itang on the Baro River, as a commercial station, and the permission to construct through Abyssinian territory a railway connecting the Soudan with Uganda. Of most importance, however, as insuring a continued water supply to Egypt, was the engagement of the signatory parties "not to construct, or allow to be constructed, any work across the Blue Nile, Lake Tsana, or the Sobat which would arrest the flow of their waters into the Nile." In 1902 it was reported that Menelek was preparing to make certain civil service reorganizations, to open schools for the teaching of European languages, and to build a new city a few miles from Adis Ababa.

ACADÉMIE FRANÇAISE, founded by Cardinal Richelieu in 1635 and reorganized in 1810, is the first in order and most eminent of the five academies which constitute the Institute of France. The membership of the Académie Française is limited to forty (known as the "Forty Immortals"), who are elected for life and represent literature, science, the fine arts, etc. There was no election in 1902. The members receive an annual stipend of 1500 francs and in addition, the six members of the dictionary committee receive each 1000 francs annually. The Académie distributes 12,000 francs annually in prizes alternately for poetry and eloquence, besides a number of smaller prizes. Permanent secretary, Marie Louis Antoine Gaston Boissier.

ACADEMY, BRITISH, founded in 1902 by King Edward VII. in London, has for its object the promotion of historical, philosophical, and philological studies. Lord Reay, chairman of the London school board and president of the Royal Asiatic Society and of University College, was made the first president. The fellows of the academy are as follows: Lord Reay; the Earl of Rosebery; Viscount Dillon, president of the Society of Antiquaries; Arthur Balfour, M. P.; John Morley, M. P.; James Bryce, M. P.; W. E. H. Lecky, M. P.; Sir William Anson, warden of All Souls' College, Oxford; Sir Frederick Pollock, Corpus professor of jurisprudence, Oxford; Sir Edward Maunde Thompson, director and principal librarian, British Museum; Sir Henry Maxwell-Lyte, deputy keeper of the public

records; Sir Courtenay Ilbert, parliamentary counsel to the treasury; Sir Richard Jebb, M. P., Regius professor of Greek, Cambridge; Dr. Monro, provost of Oriel College and vice-chancellor of Oxford University; Dr. A. W. Ward, vice-chancellor of the University of Cambridge; Dr. Edward Caird, master of Balliol College, Oxford; Dr. H. F. Pelham, president of Trinity College, Oxford; Dr. John Rhys, principal of Jesus College and professor of Celtic, Oxford; Rev. George Salmon, D. D., provost of Trinity College, Dublin; Dr. J. B. Bury, Regius professor of Greek, University of Dublin; S. H. Butcher, professor of Greek, Edinburgh University; Ingram Bywater, Regius professor of Greek, Oxford; E. B. Cowell, professor of Sanskrit, Cambridge; Rev. William Cunningham, D. D.; Rhys Davids, professor of Pali, University College, London; Albert Dicey, K. C., Vinerian professor of English law, Oxford; Rev. Canon S. R. Driver, D. D., Regius professor of Hebrew, Oxford; Robinson Ellis, Corpus professor of Latin, Oxford; Arthur John Evans, keeper of the Ashmolean Museum, Oxford; Rev. A. M. Fairbairn, D. D., principal of Mansfield College, Oxford; Rev. Robert Flint, D. D., professor of divinity, Edinburgh; J. G. Frazer, fellow of Trinity College, Cambridge; Israel Gollancz, university lecturer in English, Cambridge; Thomas Hodgkin; S. H. Hodgson (metaphysician); T. E. Holland, professor of international law and diplomacy, Oxford; F. W. Maitland, Downing professor of English law, Cambridge; Alfred Marshall, professor of political economy, Cambridge; Rev. J. E. B. Mayor, professor of Latin, Cambridge; Dr. J. A. H. Murray, editor of the *Oxford English Dictionary;* W. M. Ramsay, professor of humanities, University of Aberdeen; Rev. Canon William Sanday, D. D.; Lady Margaret professor of divinity, Oxford; Rev. W. W. Skeat, Elrington and Bosworth professor of Anglo-Saxon (Celtic scholar), Cambridge; Sir Leslie Stephen; Whitley Stokes; Rev. H. B. Swete, D. D., Regius professor of divinity, Cambridge; Henry Fanshawe; Rev. H. F. Tozer; Robert Yelverton Tyrrell, University of Dublin; and James Ward, Cambridge.

ACADEMY OF POLITICAL AND SOCIAL SCIENCE, AMERICAN. See POLITICAL AND SOCIAL SCIENCE, AMERICAN ACADEMY OF.

ACRE. For the Acre dispute see BOLIVIA (paragraph History).

ACTINOTHERAPY. See PHOTOTHERAPY.

ACTON, Sir JOHN EMERICH EDWARD DALBERG-ACTON, eighth Baronet and first Baron Acton of Aldenham (County Salop), eminent English scholar, died at Tegernsee, Bavaria, on June 19, 1902. He was born at Naples, Italy, in 1834, studied at the Academy of St. Nicholas du Chardonnet, France, and at the school of Oscott, near Birmingham, during the presidency of Dr. (later Cardinal) Wiseman. Having been refused admission to Cambridge on account of his religion (Roman Catholic), he became a private pupil of Dr. Döllinger at Munich, and there characteristically introduced his more serious studies by reading in a few weeks the forty-five volumes of Michaud's *Biographie Universelle.* In 1857 he travelled with Döllinger in Italy, and shortly afterward visited the United States. He sat in Parliament for Carlow in 1859-65, was returned for Bridgnorth in 1865, but in the year following was unseated. In 1869 he was raised to the peerage and entered the House of Lords, but his legislative career was inconspicuous. He took no part in Parliamentary affairs, he once said, because he agreed with no one and no one agreed with him. It has been asserted, however, that his advice had great influence over Mr. Gladstone. From 1862 to 1864 he edited the noteworthy *Home and Foreign Review,* which was discontinued because of the offence given to the authorities at Rome by its opposition to Ultramontanism and support of Liberal Catholicism. Subsequently he published the *North British Review*—which, rather oddly, had once appeared under the auspices of the Scottish Free Church—in the interests of ecclesiastical and political liberalism. He was at Rome in 1870, and stoutly contested the promulgation of the dogma of papal infallibility. In 1874 he seconded Mr. Gladstone in the well-known controversy on "Vaticanism" by the publication in the London *Times* (November 9, 24, 30; December 12), of four letters presenting the most effective arguments against Ultramontanism ever advanced within so brief a compass. He received the appointment of lord-in-waiting in 1892, and in 1895 that of Regius professor of modern history at Cambridge in succession to Sir John Seeley. Lord Acton was often termed the first scholar of Europe. His erudition was little short of marvelous. He collected a working library of 80,000 volumes, read an octavo a day when in harness, possessed an impeccable memory, and developed an extensive system of notes. In brilliant and learned talk he is declared the equal of Macaulay. Yet he was a notable example of what has been called "the reticence of learning." He wrote comparatively little, and always obscurely. His uncollected writings include a brief list of important articles, such as those on German schools of history and the Massacre of St. Bartholomew, and his Cambridge inaugural, published in 1895 under the title of *The Study of History.* He also furnished the introduction to L. Arthur

Bird's edition of the *Il Principe* of Machiavelli, published by the Clarendon Press. His incumbency of the Regius chair gave a marked stimulus to historical studies in the university.

ADAMS, CHARLES KENDALL, an American historian and educator, died at Redlands, Cal., on July 26, 1902. He was born in Vermont, at Derby, January 24, 1835, was educated at the University of Michigan and in Europe, was assistant professor of history at Michigan in 1863-67, occupied the chair of history in that institution from 1867 to 1885, and held the position of dean of the school of history and political science after its organization. In 1885 he succeeded Andrew D. White (*q.v.*) as president of Cornell University, and in 1892 became president of the University of Wisconsin, retaining the latter position until shortly before his death. In 1890 he was president of the American Historical Association, in whose organization he had taken prominent part. Through the foundation of the historical seminary at Michigan in 1869, he was the first to introduce into the United States the German *seminar* method of instruction. He contributed numerous papers on topics of history and education to various magazines, was editor-in-chief of *Johnson's Universal Cyclopædia* (1892), and published *Democracy and Monarchy in France* (1872; in a German version, 1873); a *Manual of Historical Literature* (1882); *British Orations* (1884); and *Christopher Columbus, his Life and Work* (1892).

ADAMSON, ROBERT, a Scottish philosopher, died at Glasgow in February, 1902. He was born in 1852, the son of Robert Adamson, a writer of Edinburgh, and received his education in his native town. When he was twenty-four years of age he succeeded Prof. Stanley Jevons in the chair of logic and mental philosophy at Owens College, Manchester. In 1893 he was elected to the chair of logic in the University of Aberdeen, and two years later accepted the professorship of logic and rhetoric in Glasgow University. He was the author of the article on "Logic" in the *Encyclopædia Britannica;* a volume on Fichte (1881), which appeared originally in the *Blackwood Philosophical Series; The Philosophy of Science in the Middle Ages* (1876); *On the Philosophy of Kant* (1879). He had in preparation at the time of his death a *History of Psychology,* and *Kant and the Modern Naturalists.* He held the degrees of Master of Arts and Doctor of Laws.

ADDICKS, JOHN EDWARD, a Delaware politician, again attempted, in 1902, to obtain control of the Republican element in the State legislature which would assure his election to the United States Senate. He was born in Philadelphia, Penn., November 21, 1841, and after receiving a high school education began his remarkable business career as clerk in a wholesale dry goods house. After four years he entered the employ of a flour and feed firm in which he was made a partner by the time he was twenty-one. Early in the 80's he branched out for himself, and his sharp business sense, assurance and persistence brought him success and a reputation as a promoter of business corporations and combines. His first and greatest success was his organization and control of the Bay State Gas Company in Boston. As the scope of his activities extended and his wealth became greater the desire for political power seems to have taken possession of him, and he removed to Delaware, whose legislature he had found tractable in connection with securing control of the Wilmington gas supply. He was laughed at when he first broached his ambition for senatorial honors in 1888, and the Republican majority gave the election to Anthony Higgins. The State went Democratic again in 1892, and it was not until 1894 that he had another opportunity. This time his ambition was thwarted by the Republicans, who supported Col. H. A. Du-Pont, and there was no choice for the vacancy. The fight disrupted the party, the Addicks faction being known henceforth as "Union Republicans." In 1896 a Democratic legislature sent Richard R. Kenney to the Senate for the last four years of the term. In 1898 the expiration of Senator Gray's term left a vacancy which the split in the Republican party made it impossible to fill. In 1900 there was a repetition of the struggle of former years, but the regular Republicans again prevented Addicks's election. From that time to the close of 1902 Delaware was unrepresented in the Senate. For the renewal of the struggle in 1902 see DELAWARE (paragraph Politics).

ADEN, a British dependency in southwestern Arabia, about 100 miles east of Bab-el-Mandeb. The area, including the small island of Perim, is stated at 80 square miles; the population (1901), 41,222. Aden, which is administered by a political resident under the Bombay government, is invaluable to Great Britain as a coaling station and a *point d'appui* for the Indian trade. The commerce is almost entirely in transit. In the fiscal year 1900 imports and exports amounted to 44,264,556 rupees (32.4 cents each) and 35,244,515 rupees respectively; in 1901, 38,363,909 and 33,554,811 respectively.

Some friction occurred in the fall of 1902 between Great Britain and Turkey on

account of the encroachment of Turkish troops in the disputed Aden hinterland. The Porte held that the troops should remain until the frontier questions were settled, but in November acceded to the British demand that they be withdrawn pending the decision of the Anglo-Turkish boundary commission.

ADRENALIN. See SUPRARENAL EXTRACT.

ADULTERATION. See FOOD.

ADVANCEMENT OF SCIENCE, AMERICAN ASSOCIATION FOR THE, organized 1848, includes in its membership the best known scientists of the country. A number of leading scientific societies are affiliated with the association, which serves as a centre for their meetings. The association meets in sections, which are: (a) Mathematics and Astronomy; (b) Physics; (c) Chemistry; (d) Mechanical Science and Engineering; (e) Geology and Geography; (f) Zoology; (g) Botany; (h) Anthropology; (i) Social and Economic Science; (k) Physiology and Experimental Medicine. The annual meetings of the association are held each time in a different city. The association held its fifty-first annual meeting at Pittsburg, Pa., June 28-July 3, 1902, under the presidency of Professor Charles S. Minot, of Harvard University, who delivered the opening address on *The Problem of Consciousness in Its Biological Aspects.* Professor Asaph Hall, also of Harvard, was the retiring president. The total number of members in attendance was 431, which number included an unusual proportion of the leading American men of science. The papers read and the addresses and lectures delivered numbered nearly 350. Among these were a lecture on *The Prevention of the Pollution of Streams by Modern Methods of Sewage Treatment,* by Dr. Leonard P. Kinnicutt; an illustrated lecture on the Martinique eruption, by Mr. Robert T. Hill, U.S. Geological Survey; *The Group Velocity and Wave Velocity of Light,* by Prof. D. B. Brace; *Pre-Historic Porto Rico,* by Dr. J. Walter Fewkes; and a paper on *Applied Botany, Retrospective and Prospective,* by Dr. B. T. Galloway. The financial report showed a balance in the treasury to the credit of the association amounting to $12,285.83. Seventy-three new members were elected at the meeting. The fifty-second annual meeting of the association was held at Washington, D. C., December 29, 1902-January 3, 1903, under the presidency of Dr. Ira Remsen, of Johns Hopkins University, and was the first held during the newly arranged convocation week as agreed to by 54 prominent American educational institutions. The membership of the association at the close of the Pittsburg meeting showed a total of 3,473. This was augmented by the election of 392 members at the Washington meeting. The association is now the largest and most representative body of scientific men in America. Among the scientific societies affiliated with it are: The American Mathematical Society, the Astronomical and Astrophysical Society of America, the American Physical Society, the American Chemical Society, the Society for the Promotion of Engineering Education, the Geological Society of America, the Botanical Society of America, the Society for the Promotion of Agricultural Science, the American Forestry Association, the Association of Economic Entomologists, the American Psychological Association, the American Anthropological Association, and the American Society of Naturalists, with its special societies. Among the resolutions offered was one urging upon Congress the duty of making full provision for the support of the family of the late Major Walter Reed, surgeon in the United States Army, in appreciation of his far-reaching and invaluable services in solving the problem of the mode of spread of yellow fever and the discovery of methods, already successfully tested in Cuba, of eradicating the pestilence. The next meeting will be held December 28, 1903-January 2, 1904, in St. Louis, Mo., under the presidency of Hon. Carroll D. Wright, U. S. commissioner of labor. Permanent secretary, Dr. L. O. Howard, Cosmos Club, Washington, D. C. See ZOOLOGICAL SOCIETIES.

ADVANCEMENT OF SCIENCE, BRITISH ASSOCIATION FOR THE, founded in 1831, held its annual meeting at Belfast, September 10, 1902, and following days. President James Dewar, in his opening address, discussed exhaustively the efforts that have been made to investigate the effects of extreme low temperatures upon gases. In section A (Mathematics and Physics) Professor Schuster, president of the department of Astronomy and Cosmical Physics, called attention to the waste of power displayed by investigators in meteorology and other sciences by devoting their energies almost exclusively to the collection of observations. As a result, undigested data are accumulating to too great an extent. In the discussion that followed, Dr. Shaw, head of the Meteorological Office, suggested as a remedy the establishment of professorships in meteorology in some of the universities. The question whether motion through the ether causes double refraction of light in transparent bodies was discussed by Lord Rayleigh. In section B (Chemistry) considerable interest was taken in the discussion of two monographs on *Hydro-Aromatic Compounds* and *Aromatic-Diazo Compounds* by Dr. A. W. Crossley and

Dr. G. F. Morgan. These monographs are to be published at length in the annual report. A paper on the *Alkylation of Sugars,* by Prof. T. Purdy and Dr. J. C. Irvine was also presented. In section C (Geology) President C. A. McMahon, F. R. S., dealt with the general principles of rock metamorphism; a paper by Mr. George Barrow on *The Prolongation of the Highland Border Rocks into County Tyrone,* and a lecture by Professor Grenville A. J. Cole on *The Structure of Ireland,* were warmly discussed. A number of other interesting papers in the same line were also presented. In section D (Zoology) President Howes traced the advances made in the knowledge of the animal kingdom and the inter-relationships of its various groups through the application of the morphological method. Papers of great practical importance were presented by Professor McIntosh and Mr. Garstang on the international scheme for the protection and development of the North Sea fisheries. The introduction of more scientific methods in geographical work, especially in the work of exploration, was the theme discussed by Sir Thomas Holdich, president of section E (Geography). His views were in a great measure sustained in papers read by Professor Libbey, Dr. Herbertson, Professor Watts, Mr. Lloyd Praeger, Mr. R. B. Buckley, and others. The address of President Cannan (section F, Economical Science and Statistics), was an application of the theory of rent to the question of municipal housing and other municipal ventures. A paper was also presented from an opposite point of view, which condemned unhesitatingly all productive municipal enterprises. The discussion, however, was not sufficiently long or representative to cover the ground adequately. The possibilities and future of commercial education also came in for a considerable share of discussion. In section G (Engineering and Mechanical Science) the president, Professor John Perry, F. R. S., dealt with the subject of the education of the engineer, insisting on the continual use of experiment by the student himself as distinguished from oral lecture or demonstration by the professor. The address was subsequently made the subject of discussion at a joint meeting of the engineering and educational sections, under the presidency of Professor Armstrong, during which the subject *The Science of the Workshop* was debated. In section H (Anthropology) the discussions evoked by the quality and variety of the papers presented were unusually interesting. The president's address was devoted to the much-debated question of the nature and origin of totemistic observances among uncivilized peoples. A number of archæological papers were presented and read. In the meetings of section I (Physiology) experimental and morphological contributions received attention and criticism. Professor Halliburton's presidential address emphasized the importance of chemical physiology. A paper on color-vision by Dr. Edridge-Green was read and discussed. A morphological and physiological paper by Dr. John Turner was presented and caused considerable discussion. Prof. J. R. Green in his presidential address (section K, Botany) emphasized the study of vegetable physiology, not merely on account of its intrinsic value in special botanical problems, but as a subject of fundamental economic importance in relation to agriculture. The papers read in this section were of considerable interest. The president of section L (Educational Science) took for the subject of his discourse *The Scientific Use of the Imagination.* In eloquent and forcible language he presented the view that the domination of the schools by the classic and the cleric has led to a serious disuse of the imagination, and he laid down a doctrine of education and an ideal of the function of the school that are far removed from those at present accepted by the great body of schoolmasters. A paper on *Recent Reforms in Irish Education* was presented by Dr. Starkie and caused considerable discussion. A valuable paper presented by Mr. P. J. Hartog on *The Teaching of English* drew attention to the method of teaching style in composition adopted in the principal French schools, and condemned the existing assumption that the only method of teaching English composition and style must be through the medium of Greek and Latin, of which the average schoolboy has not obtained a real grasp. An event of the meeting was an address by Prof. C. S. Minot, president of the American Association for the Advancement of Science, in which he extended an invitation to the members of the British association to attend the meeting of the former association at Washington, D. C., in December, 1902, which was accepted by Professor Dewar on behalf of his association. See ZOOLOGICAL SOCIETIES.

ADVENTISTS, popularly known also as Millerites, a name derived from that of their founder. Varying doctrinal views are held by the six divisions that form the denomination: Evangelical, Advent Christians, Seventh Day Adventists, Church of God, Life and Advent Union, and Church of God in Jesus Christ. In the United States the Adventists number 98,487, with 2402 churches and 1554 ministers. The Seventh Day Adventists, organized in 1844, constitute the most numerous branch of the denomination, having 78,188 communicants, of whom more than 63,500 are in the United States, 2011 churches, and 553 ordained ministers. Under the auspices of this body there are 8 colleges and 15 academies and industrial

schools, and 11 publishing houses, its headquarters being at Battle Creek, Mich. The next session of the general conference will be held in California, March 27 to April 13, 1903. Next in numerical strength after the Seventh Day Adventists are the Advent Christians with a membership approximating 25,000, and churches and conferences in nearly all of the States. They have about 900 organized churches and 1000 ministers. The Advent Christian Publication Society has headquarters in Boston, where the *World's Crisis* is issued, and there are three other denominational publishing houses. Two ministerial training schools, in Boston and in Mendota, Ill., are maintained; and foreign missionary work is conducted through the American Advent Mission Society in China, India, and the Cape Verde Islands.

AERIAL NAVIGATION. Attempts to solve the problem of aerial navigation were notably fewer in 1902 than for several years previous. Mr. Santos-Dumont, whose successful efforts at sustained flight in dirigible balloons have signalized the work of previous years, accomplished little if anything new during 1902. In fact, his visit to the United States, with one of his balloons, from which much was expected by enthusiasts in this particular mode of navigating the air, proved for various causes a sad failure, not a single excursion being made. Another serious check was given to the art by the frightful accident to the Severo aerostat in Paris, which resulted in the death of the inventor and his assistant. Despite its tragic conclusion this experiment was in some respects the most noteworthy of any undertaken during the year. In all of the later balloons designed by Santos-Dumont the motor keel has been suspended some distance below the body of the balloon proper. By this construction greater safety from possible ignition of the gas in the balloon by the gasoline motor or from other causes was secured, but it was had at the expense of several disadvantages in the dirigibility of the balloon. Mr. Severo proposed to overcome these disadvantages by propelling the balloon from its axis, by building the driving and stiffening keel within the balloon. The aerostat constructed by him on this principle had the form of an elongated spheroid with a length of 108½ feet, a maximum diameter of 39½ feet, and a capacity of 2200 cubic meters. Two gasoline motors formed the propelling machinery. One motor weighing 220 pounds and developing 16 horse-power was carried on a light bed formed of steel strips at the front end of the keel. The crank shaft was geared by bevel gearing to two vertical rods, one rising to the axis of the balloon where it transmitted power to the horizontal shaft carrying a displacement propeller, and the other driving two vertical fans placed longitudinally underneath the balloon for steering. At the rear end of the keel there was a 24 horse-power motor arranged in exactly the same way for operating the driving propeller, a second pair of steering fans, and a small compensating propeller at the end of the keel. At the trial the aerostat rose to a height of 1500 feet, with all machinery working well, but soon afterwards the propeller was seen to slacken in speed and the aerostat began to drift with the wind. What happened then to cause the accident can never be known, but suddenly a sheet of flame was seen to envelop the balloon and the ruins of the keel fell to the ground with the bodies of the aeronaut and his assistant entangled lifeless in its wreck. On November 2, 1902, an air ship made by Lebaudy Brothers, of Paris, received its first test, when at a height of 60 feet it was propelled against the wind, making, it is stated, a speed of 25 miles per hour. The machine was restrained by a rope from ascending higher. The Lebaudy balloon is similar to the Santos-Dumont, but larger, it being 33 feet in diameter and 193 feet long. The car is 16½ feet long and holds three persons. A 40 horse-power motor drives the propeller. The record of the year for successful flight is, however, due to the air ship of Mr. Stanley Spencer, an English aeronaut which ascended from the Crystal Palace, in London, on September 19, 1902, and made a trip of nearly 30 miles seemingly under perfect control as to direction. This aerostat is 75 feet long, with a blunt nose and tail, and has its propeller in front and is driven by a 30 horse-power motor. It carries only one person.

AFGHANISTAN. A monarchy lying east of Persia and between British India and the central Asian states under British domination. The capital is Kabul.

Area and Population.—The estimated area of Afghanistan, which extends about 600 miles east and west and about 500 miles north and south, is somewhat over 215,000 square miles. The inhabitants, who comprise several races or tribes, number about 4,000,000, most of whom belong to the Suni sect of the Mohammedans.

Government, etc.—At the head of the government, which is loosely organized, is the ameer, an hereditary ruler whose will theoretically is absolute. The ameer in 1902 was Habibullah, who succeeded to the throne upon the death of his father, Abdurrahman, October 1, 1901. The provinces are administered by governors largely through the medium of feudal nobles. Afghanistan, which is practically under British influence, has no foreign relations except with the government of British India. The annual revenue, the amount of which cannot be determined, is

derived mainly from taxation on production, and its collection is attended with dishonesty and extortion. From the Indian government the ameer receives an annual subsidy of 18 lakhs of rupees ($583,200). The strength of the regular army, which is supplied with arms and ammunition from the factories established by Abdurrahman at Kabul, is estimated at 44,000 men, but in 1902 it was stated that the ameer purposed to increase this number to 80,000.

Industries and Commerce.—Considerable attention is given to agriculture and the raising of live-stock. The important products include cereals, lentils, fruits, and asafœtida. These commodities, together with horses and other live-stock, and raw wool, make up the bulk of the exports, which also include a few manufactures such as silk, carpets, and articles made of camels' and goats' hair. The leading imports include cotton goods, dyeing materials, sugar, and tea. No accurate figures are available for the total trade. In the fiscal year 1901 the commerce of Kabul and Kandahar, the principal trade centres, with British India were valued at 5,133,670 rupees in imports and 5,408,310 rupees in exports. (The rupee equals one-fifteenth of a British sovereign, or 32.4 cents.) The total trade with Bokhara is estimated at nearly 8,000,000 rubles. (The ruble is worth 51.5 cents.)

History.—The chief characteristic of Afghan affairs in 1902 was uncertainty. Rumors of plots and counterplots in the court and among the nobles were rife, but on the whole it could not be charged that the new ameer showed himself incompetent or, from the eastern standpoint, of bad intent. In February, 1902, unrest at Kabul was fomented by the reported ascendancy in influence over the ameer of the Hadda Mullah, who, it will be remembered, played a considerable part in bringing about the troubles that necessitated the frontier expeditions of 1897. The ameer Abdurrahman kept the power of the mullahs within clearly definite limits, and it was thought that Habibullah's cordiality toward the Hadda Mullah was due to the assistance that he might render in combating the reported designs of Mahommed Ismail upon the Afghan throne. Ismail is the son of Abdurrahman's old opponent Ishak Khan. In order so far as possible, however, to avoid trouble, Habibullah asked the Hadda Mullah to defer his proposed visit to Kabul until after the royal installation on the Afghan New Year's day, about March 20, 1902. The Hadda Mullah, having made his visit and returned to the Indian frontier, in June was removed, together with Mullah Syed Akbar, to Paghman, a town near Kabul, by Habibullah, whose action seemingly sprung from a desire to show friendship to the British government. In the accounts of the court intrigues during 1902, Bibi Halima, mother of Mohammed Umar Khan, a brother of the ameer, was a prominent figure. She opposed, and seemingly had considerable power in her opposition, a number of administrative policies favored by Habibullah. In March it was reported that the troops, having received no pay since the accession of the new ameer, were dissatisfied, but in June he was engaged in bringing about army reform. Besides improving the uniforms and preparing arms and ammunition, he made definite plans for the disposition of the Afghan forces. The border troops were to be kept separate from the regular army, which should comprise 80,000 men.

Although in September, 1902, it was reported that the ameer was giving not a little dissatisfaction to the Indian government, he nevertheless, as seen in the following month, was evidently desirous of maintaining the *status quo* as to foreign relations. It had been reported that in June the ameer regarded with some favor the request of the Russian governor of Tashkent for a Russian representative at Kabul, but in the fall, replying to a Russian communication, he pointed out that Afghanistan may maintain foreign relations only with the Indian government. On October 22, 1902, Lord Cranborne, the British under-secretary for foreign affairs, said in the House of Commons, that in a similar note the Russian government had proposed to Great Britain that direct relations be established between Russia and Afghanistan with regard to frontier matters. Although Russia denied that these relations would have any political character and stated her intention to maintain her foreign engagements and regard Afghanistan as outside the sphere of Russian influence, it was feared in some quarters that she was designing to repeat the intrigues successfully carried out in northeastern Persia.

AFRICA. The area and population of Africa, most of which is unsurveyed and much practically unknown, are necessarily matters of conjecture. Among the latest estimates about 11,500,000 square miles appears for area and about 157,000,000 for population.

Among the more noteworthy events and developments in Africa during 1902 are the following: The end of the Anglo-Boer war, May 30 (see TRANSVAAL); political unrest in Cape Colony; the continued economic progress of Egypt under British administration, the completion of the great Nile dam at Assuan (see DAMS), and the opening of Gordon College at Khartum; the tribal outbreaks in Morocco and finally the attempted overthrow of the sultan; the partly political and partly religious "Senussi" movement, involving Mohammedan natives from Tripoli to

French Central Africa (see FRENCH SOUDAN); the recurrence of insurrectionary movements on the part of the "Mad Mullah" in Somaliland; the administrative reorganization of French West Africa; trouble with the natives in Nigeria and progress in the British organization of that country; advance of the Cape-to-Cairo Railway (*q.v.*) and of the Jiboutil Railway (see SOMALILAND); and continued administrative outrages in the Congo Free State. With varying detail these and many other subjects pertinent to 1902 are treated in the separate articles on the independent countries, the colonies, and the protectorates of Africa.

In the extension of European sovereignty over Africa little apparently was done in 1902 except in the work of establishing actual control in regions already admitted to be within the "sphere" of one power or another. Abyssinia, Liberia, and Morocco maintain their independence. The first named is strong and jealous of her rights; Liberia is weak and unpromising; Morocco, at the end of the year rent with rebellion, is coveted by the French. The most successful dependencies in Africa, as also in other parts of the world, are British; and on the whole the success of the dependencies is real from both the British and the native points of view. In 1902 the extension of British administrative activity was particularly noteworthy in the former Boer republics, the Egyptian Soudan, and Nigeria. Effective French control is steadily working eastward from Senegal and northward from the Guinea colonies and the Congo; indeed, what France is attempting to do in the western and central Soudan is what Great Britain is doing, or in some respects has accomplished, in the Egyptian Soudan. In both regions the European has encountered the courageous and fanatical powers of Islam, whose activities are always a combination of politics and religion. It must be pointed out that while French political influence is undoubtedly advancing in the central and western Soudan so also is Mohammedanism as a religion; Islam is encroaching upon pagan Africa, westward to the coasts of Senegal and Gambia and southward into the French Congo.

Far less successful than the British and French are the German dependencies. In all German Africa there were in 1901 less than 5600 white residents, and no German dependency in Africa, or indeed in any part of the world, is self-supporting. At home the emperor's policy of *koloniale politik* encounters not only popular disfavor but a strong and active opposition in the Reichstag. In 1902 a German anti-colonial organ said: "The government has no other alternative except to sell its African possessions to Great Britain. It is useless to waste any more money on these colonies. Great Britain has tremendous resources and will bring them to play upon its African territory. Germany has no other alternative except to evacuate." But the supporters of the colonial policy "turn their eyes confidently to the Kaiser." Portuguese and Italian progress in Africa is slow, though Italy is striving to increase her influence in Tripoli (Turkish); and Spanish progress is *nil*, though Spain still claims peculiar rights contingent upon any change of the *status quo* in Morocco.

The most conspicuous African explorations in 1902 were in the Somali and Galla regions south of Abyssinia proper and in the regions lying between the basins of the Congo, Lake Tchad, and the Benué. The former were visited by the Austrian traveler, Count Wickenburg, and the latter by a number of French explorers. Lieutenant Kieffer and later Lieutenant Loefler visited the Shari system, and Loefler confirmed the existence, rumored since the time of Barth, of the connection, at least in the rainy season, of the Logone with the Benué. The region of the Upper Sanga, a tributary of the Congo, was explored by M. Kerremans, another French official, and a western branch of the Sanga, the Ja, was explored by Baron von Stein, the governor of Southeast Cameroon. A number of boundary lines were run in 1902. An important addition to the knowledge of Africa was made in 1902 by the publication of Sir Harry H. Johnston's comprehensive two-volume work on *The Uganda Protectorate.*

AFRICAN METHODIST EPISCOPAL CHURCH. See COLORED METHODISTS.

AFRICAN METHODIST EPISCOPAL ZION CHURCH. See COLORED METHODISTS.

AGRICULTURE. Agriculture shared the general prosperity of the country during 1902. The production of most of the staple crops was enormous, new records being made in the case of several crops. This was true, although the season in many parts of the country was abnormal, the excessive rains during summer, in place of the drought of the previous summer, being quite unfavorable to some crops. The corn crop, which was unusually poor in 1901, amounted to two and a half billion bushels, one of the very largest on record. The quality, however, was poor in restricted sections, owing to the rainy season. While the production of wheat was less than in 1901, which was a record year, it was much above the average and nearly equalled the previous record crop of 1898. The price was notably good. Oats and barley produced the largest crops ever recorded. The yield of barley ex-

ceeded the record crop of 1901 by 25 million bushels and was nearly double the average for several years past. The permanent damage to the oat crop from the heavy rains during the period of growth was less than anticipated, the main effect being apparent in the quality. The crops of hay and of potatoes were among the very largest recorded, the average yield of hay per acre being unusually heavy. (See the articles on the various crops.) The total farm value of the cereal crops of 1902, as estimated by the United States Department of Agriculture, was $1,821,805,745. The addition to this of the estimated value of the other staple crops (potatoes, hay, tobacco, buckwheat, and flaxseed) gives a total of $2,617,895,416, exclusive of the cotton crop of 10,417,000 bales, which would bring the estimated value of the leading farm crops well up toward three billion dollars. The census of 1900 makes the aggregate value of farm products (animal and vegetable) five billion dollars, an increase of two billion in the decade. The terrible drought in Australia which has lasted for over four years has operated favorably on American export trade. Not only has the Australian wheat trade in Asia fallen into American hands, but Australia itself has been compelled to buy wheat from the United States. As a result wheat sold in San Francisco at the close of 1902 at a higher price than at any time within the past four years, and for some months it had not been necessary to consign a single cargo to Liverpool, making the Pacific coast wheat grower independent of the Liverpool market.

The year 1902 was a prosperous one for live-stock and dairy interests as well. The prices for cattle and hogs were unusually good for the most part, and milch cows were in demand at high figures. The prices for beef reached a higher level in the early summer than for twenty years. Steers sold for $8 to $8.75 a hundred pounds. The close of the year, however, found the Chicago market glutted with cattle, and prices ruled very low. The value of the exports of animals and animal products for the year ended June 30, 1902, amounted to the large sum of $244,733,062. There was an increase of about three million dollars in the amount of animal products exported, but the value of the cattle shipped decreased nearly eight million dollars, due to the sharp demand for beef cattle at home. Our total agricultural exports for the year ended June 30, 1902, had a value of about $860,000,000, and our agricultural imports amounted to $410,000,000. The number and value of farm animals in the United States on January 1, 1903, as compared with the same date in 1902, is thus stated by the statistician of the United States Department of Agriculture:

	Number.	Ave. price per head.	Value.
HORSES.			
1903	16,557,373	$62.25	$1,030,705,950
1902	16,531,224	58.61	968,985,178
MULES.			
1903	2,728,088	72.40	197,753,327
1902	2,757,017	67.61	186,411,704
MILCH COWS.			
1903	17,105,227	30.21	516,711,914
1902	16,696,802	29.23	488,130,324
OTHER CATTLE.			
1903	44,659,206	18.45	824,054,902
1902	44,727,797	18.76	839,126,073
SHEEP.			
1903	63,964,876	2.63	168,315,750
1902	62,039,091	2.65	164,446,091
SWINE.			
1903	46,922,624	7.78	364,973,688
1902	48,698,890	7.03	342,120,780

Plant Production.—One of the most noteworthy features of the work in plant production is the attempt to improve cultivated fruits and crops by systematic plant breeding. All our common fruits and agricultural plants have been brought to their present stage of perfection by selection and cross-breeding. While this has long been practiced by seedsmen and others, much interest has been aroused in recent years in conducting such work on a scientific basis and with a definite aim. In some cases the object sought is a strain or variety of greater resistance to drought or cold, or some specific disease, in others one of shorter growing period or greater productiveness or greater richness in composition. The work is of great variety and is being prosecuted enthusiastically by a large number of workers in this country and in

Europe. The large interest in this subject was shown by an International Congress of Plant Breeding and Hybridization, the second of its kind, which was held in New York City at the end of September, 1902. About eighty delegates were in attendance, including several from Canada and abroad. A long programme of papers was presented which dealt with the principles of plant breeding and their application, and reported the results attained in various lines. The fundamental principles underlying plant selection and breeding, and the fixation of desirable qualities, are but imperfectly understood as yet, so that the element of chance enters largely into the work and retards progress. Some very valuable results have already been obtained in this country with a number of crops, and the systematic work that is being carried on by the United States Department of Agriculture and many of the agricultural experiment stations promises much for agriculture and horticulture, in providing varieties of special adaptation to locality and purpose.

The search for new plants and varieties better adapted to particular sections of the country, and the introduction of old plants into new sections, go steadily on with encouraging progress. Macaroni wheat has become an established crop in the drier regions of the Northwest, and yields from one-third to one-half more than the other standard wheats in the same localities. It is estimated that about two million bushels were harvested in the season of 1902, an amount that is inadequate to meet the increasing demand. The growth of emmer or spelt, a grain somewhat like barley, is extending in the semi-arid regions. It is grown in Europe where corn cannot be raised, and is used principally as a feed for sheep, pigs, and other farm animals. It is hardy and resists drought and hot summers. The results with it experimentally have been encouraging, and its growth as a forage crop in regions to which it is adapted is extending. Such leguminous crops as alfalfa, cowpea, and soy bean are spreading more widely every year, and are being grown in the East to save buying such large quantities of expensive feeding stuffs. In Delaware it has been shown that maximum crops of alfalfa yield an amount of protein per acre equivalent to that in one and a half tons of cotton-seed meal, and that a crop of crimson clover and of cowpeas, which could be grown on the same piece of ground during the season, would produce an equal amount. The New Jersey Experiment Station found that alfalfa hay and crimson clover hay each took the place of the grain ration for milch cows, and resulted in a considerable saving in cost, showing the practical way in which, under a system of intensive farming such as is followed at the station farm, leguminous crops may be used to take the place of purchased feeds. The Illinois Experiment Station has shown that the bacteria necessary to enable alfalfa to assimilate the nitrogen of the air are usually lacking in the soils of that State, and that even the rich black prairie soil does not contain sufficient nitrogen for maximum crops of alfalfa. The application of nitrogenous fertilizer increased the yield of alfalfa hay from two to four times, and inoculation of the soil with the proper bacteria gave equally as large crops as the use of fertilizers. In the South the velvet bean is being widely introduced as a forage and renovating crop. It makes a luxuriant growth, covering the ground with a heavy mass of vines, leaves, and pods. The vines may be either pastured, cut and fed green, or cut and made into hay. The beans may be ground and fed as a grain ration. All parts of the plant make rich feed and are much relished by animals. The stubble and roots enrich the soil and improve its physical condition. This increasing growth of numerous kinds of leguminous plants is a most important step in the direction of better farming, resulting in the production of larger amounts of feed on the farm, and in increasing the fertility of the land. Aside from the saving in expense for concentrated feeds, it is also relieving the farmer of a portion of the expense for commercial fertilizers, which is a heavy burden in many sections and especially in the South.

Cassava is another crop that has been tried in the South experimentally, and is now being grown to an increasing extent in the Gulf States as a fodder crop. It is raised as a root crop, giving an enormous yield of starchy tubers which are relished by cattle and hogs; and, supplemented with velvet bean, is said to produce beef of excellent flavor, economically. A new method for preserving sweet potatoes has been worked out and tested at the South Carolina Experiment Station, which consists essentially in boiling the tubers before evaporating them. The evaporated product will keep indefinitely and bear transportation to any part of the world at any season. Several varieties yielded from 3000 to 5000 pounds to the evaporated product per acre. Hemp growing is being undertaken in Nebraska, where a new and important step has been taken in cutting the crop with an ordinary mowing machine. A simple attachment, which bends the stalks over in the direction in which the machine is going, facilitates the cutting. The cost of cutting hemp in this manner is 50 cents per acre, as compared with $3 to $4 per acre, the rates paid for cutting by hand in Kentucky, where more than nine-tenths of the hemp produced in the United States is now grown. By the methods that can be practiced in Nebraska,

hemp tow, it is said, can be produced nearly equal in value to Kentucky rough hemp, and at a total cost, exclusive of rent of land, of about $20, instead of $45, per ton.

There was a considerable extension of sugar beet culture in this country in 1902, the estimated area being 259,513 acres, against 137,925 in 1901 and 132,000 in 1900. The most notable increases were in Michigan, California, Colorado, and Utah, which are credited with about 88 per cent. of the aggregate acreage, Michigan leading California in that respect. The production of beet sugar for 1902-03 is estimated by Willett and Gray at 195,800 tons, which, with the production of sugar from cane (250,000 tons) gives a total of 445,800 tons, an amount equal to about 17 1-2 per cent. of the total sugar consumption of the United States. See SUGAR INDUSTRY.

The growth of Sumatra tobacco under shade in the Connecticut Valley greatly increased during 1902, about 700 acres being grown in this manner in that season, as compared with a total of less than 40 acres the preceding year. The season was quite unfavorable to tobacco in New England, owing to the unprecedented rainfall and the unusually severe wind and hailstorms; but the crop under cover was apparently not injured, and the quality is said to be better than in the previous year. It is estimated that the yield of cured Sumatra tobacco will be about 1,000,000 pounds; and the success of the industry is considered assured.

Considerable interest has been aroused among the grape growers of Austria, Italy, France, and a number of adjoining countries, in a method for protecting crops against hail by means of cannonading. The method consists essentially in sending up vortex rings of smoke and air toward approaching hail clouds, by means of explosives in cannon of special construction. Those who have actually put the method into operation testify with remarkable unanimity as to its effectiveness, the loss from hail being declared much less than before the system of cannonading was introduced. The most systematic organization of cannonading stations is found at Denicé, where 52 cannon, covering an area of 2500 acres, are operated. The movement has attained great importance among practical men, and the installation of the system is rapidly extending, especially in the grape-growing regions of Europe. The idea has been scouted by some scientific men, while others, although unable to explain the action, are impressed with the practical results. An international congress of those interested in the subject was held at Vienna, Austria, in the autumn of 1902, under scientific auspices.

Animal Production.—The year 1902 witnessed a further passing of the scrub and an increased appreciation of well-bred stock. A considerable percentage of farmers hitherto unconvinced of the pecuniary advantage of using good blood in producing market stock have been converted, and purchased pure-bred bulls. On the range there was an evident movement in the direction of better-bred animals such as the market demands; and this, coupled with the shortage of corn, the drought in some sections, and other influences, forced upon the market an unusual number of poorly-bred and inferior cattle. This interest in better stock is evidenced by the auction sales of pedigreed beef cattle during 1902, which amounted to more than two and a half million dollars, an increase of nearly three-quarters of a million over 1901, and by the large private sales. The prices were a matter of much satisfaction to breeders. At 26 auction sales in Chicago, 1789 head of pure-bred cattle were sold at an aggregate sum of $611,876, a general average of $342 each. Among the sensational sales of the year was that of the Hereford bulls Crusader and Perfection at $10,000 and $9000, respectively; the cow Dolly 2d, of the same breed, for $7000; the imported Aberdeen-Angus bull Prince Ito at $9100, and a yearling heifer of the same breed for $6300. Many more Shorthorns were sold than of any other breed, and these brought a general average of $260 each, being only exceeded by the Herefords at $265. The report of the Union Stock Yards at Chicago shows a remarkably heavy year, the total valuation of the stock received reaching the stupendous sum of $312,884,386, over 30 million dollars more than in 1901, and 50 millions more than in 1900. These receipts included nearly three million head of cattle, 250,000 calves, about eight million hogs, four and one-half million sheep (a large increase), and over 100,000 horses. At both the Kansas City and Omaha stock yards, the receipts of cattle, calves, and sheep were the largest ever recorded for those places.

The question of how to produce beef more economically is one of the most vital importance to the Middle West. The advance in value of farm lands, the competition of the range country, and the higher price of corn and other feeding stuffs have materially changed conditions; and it is often questioned whether the feeder can hope to realize a profit from feeding corn at 55 or 60 cents a bushel. One of the most extensive and valuable experiments bearing on this point ever made was carried on in 1902 by the Iowa Experiment Station, in cooperation with a large stock feeder at the Brookmont Farms, comprising over 7000 acres. Eleven lots of twenty steers each were fed corn, with a variety of other feeds added, and finished for the market. The price received ranged from $7 to $7.65 per hundred. The largest net profits per steer, $17.60 and $18, were made on rations of corn with

gluten meal or feed, and these lots gave the best results in the slaughter test. The price received for the corn which was fed to the different lots ranged all the way from 70 cents to $1.04 per bushel, 93 cents being realized when the corn was fed without other grain. The results show that with proper management there are good profits in feeding corn at the prices received for the steers; and that the selection of feeds to be given with the corn is a most important one.

The leading live-stock event of 1902 was the third International Live-Stock Exposition, held at Chicago, November 29 to December 6, inclusive. It surpassed its predecessors in magnitude and in the character of the exhibits. The educational value of these shows is very great, and they attract very large numbers of persons interested in various kinds of stock, who study the progress in animal breeding as exhibited by the specimens of pedigreed animals presented and follow the work of the judges. The Aberdeen-Angus cattle were the leaders at the fat stock show, whereas in 1901 it was the Herefords. Never has a breed accomplished such sweeping victories at a fat-stock show. Two out of three of the breed championships by ages, the grand championship of the show, the grand champion herd and reserve for the herd, fell to the blacks, and the carload lots made almost as sweeping a victory. In the slaughter test, five of the ten prizes for carcasses fell to the blacks, including the championship. Several of the agricultural colleges made fine showings. The Iowa Agricultural College carried off the grand championship of the fat-stock show, and the herd championship, with its Aberdeen-Angus cattle. The showing of carload lots of beef animals surpassed any previous display, no less than 120 carload lots of fancy-fed cattle competing. There was also an unusually fine showing of sheep; but the horses proved the most attractive feature of the exhibition. There was an enormous exhibit of Percherons, and a fair one of Shires and Clydesdales. The contest of draft horses was extraordinary, and evoked the keenest interest. The show called attention again to the merits of the dairy-bred steer for beef, which have also been brought out in trials at several of the experiment stations. These combined results have shown that the dairy-bred steer may profitably be turned to beef, and in many cases makes a very creditable showing as a beef animal. In the slaughter test at the show a Jersey steer three years old occupied fourth place among seventeen animals slaughtered, all the others being of recognized beef type. The present discrimination of the market against the dairy-bred steer is regarded by many as unjust.

A noteworthy event of the year 1902 was an outbreak of the foot-and-mouth disease among cattle in New England during the fall. This disease is quite common in Europe, but has seldom occurred in this country. It is extremely contagious and on this account especially is much feared. It is characterized by eruptions of ulcers or blisters in the mouth, upon the heels, or between the toes, and upon the teats or udder. The appetite is depressed, the milk-flow diminishes, the animal loses condition and becomes lame. After a day or two the ulcers break, peel off, and leave a raw surface that may heal in a few days, or, especially upon the feet and teats, may remain sore for a long time and lead to serious complications. The death-rate is very low, but the disease attacks the whole herd, and many animals are seriously damaged, so that the loss to a herd owner is heavy. A strict quarantine was established, and Congress promptly made an emergency appropriation of $500,000 to check the outbreak. This work was in the hands of the Bureau of Animal Industry of the United States Department of Agriculture, assisted by local authorities. Some 2500 head of cattle were killed, the owners of which received an indemnity amounting to 70 per cent. of their appraised value. The disease was brought under control by the close of the year, and infected premises were then thoroughly disinfected and in some cases burned. It is thought possible entirely to stamp it out, as the area of infection was quite restricted and the prompt action prevented its spread.

A most important discovery bearing on the relation of human and bovine tuberculosis was reported during 1902. It has resulted in a method for immunizing cattle to tuberculosis by means of a vaccine prepared from the sputum of human consumptive patients. The disease in man and cattle is usually held to be due to the same organism, but the bacillus from man is less virulent in its action on animals than that from cattle. Dr. von Behring of Marburg, Germany, announces that cattle passing through the mild attack induced by the human tubercle bacilli are thereafter immune to bovine tuberculosis. Experiments in immunizing cattle have been carried on by him for five years, and have shown the best methods of preparing and administering the vaccine. The immunization has held for a number of years, and Dr. von Behring believes the method as worked out by him is entirely practical. Similar, but less extensive, results have more recently been announced by Dr. Pearson, of Philadelphia. The method of immunizing cattle to this dread disease, if the expectations of the authors are realized, offers a practical means of controlling its ravages

in animals and constitutes one of the most important discoveries in animal pathology.

Agriculture in the Philippines.—In the report for 1902 of the United States Philippine Commission, Dean C. Worcester, secretary of the interior, reviews the present state of agriculture in the islands and outlines some of the opportunities for development. Up to the present time agriculture has been carried on in a very primitive fashion, with rude implements and antiquated machinery, and without the use of fertilizers or the employment of suitable methods of cultivation and management. The results that have been obtained under such conditions afford proof of the favorable character of the climate and the natural richness of the soil. Only a small part of the soil suited to the production of sugar, hemp, and tobacco on a large scale is at present under cultivation. The method of extracting sugar leaves approximately 50 per cent. of the sugar in the pressed cane, and hemp is cultivated in a haphazard way, where it is not allowed to grow practically wild. Though the fibre is extracted by hand, hemp constitutes 62½ per cent. of the total exports of the island. No systematic and sustained effort has ever been made to improve the quality of Philippine tobacco, and the methods of curing it are very primitive. There are large areas of Government lands admirably suited to the cultivation of cocoanuts, and the demand for copra (dried cocoanut meat) and cocoanut oil exceeds the supply. At present there is no true cacao plantation in the archipelago, and the methods practiced are very primitive and wasteful. The cacao now produced in the island of Mindanao is of superior quality and brings an especially high price. There are thought to be unusually fine opportunities for developing the culture of this crop, and also of vanilla in numerous regions. With the exception of the mango, the fruits of the region have been practically neglected in the past, although the conditions of the soil and climate are generally adapted to the growth of bananas and pineapples, and, in selected localities, oranges and other citrus fruits. An especially fine coffee is grown in the mountain regions of Benguet and Bontoc and in the province of Lepanto. The bushes yield heavy crops, and the unhulled coffee at present sells readily in Manila at 35 dollars (Mexican) per cavan (nearly three bushels). Coffee bushes come to bearing in Benguet in three years. The secretary says: "There is no region in the United States which has a more healthful or delightful climate than is afforded by the Benguet highlands, where a white man can perform heavy field labor without excessive fatigue or injury to his health." One of the greatest drawbacks to agriculture in the Philippines at present is the lack of draft animals. Rinderpest has been very prevalent among the carabao (water buffalo) and cattle, and surra among horses. The supply of these animals is so short in some sections that farm work has been entirely abandoned. Efforts are being made through the provincial governments to restock the islands with draft animals, and the Serum Institute is turning out an anti-rinderpestic serum in large quantities. The production of milk and beef offer great opportunities for profitable development, provided disease can be controlled. Milk is very scarce and dear in Manila, and native beef cattle are very high. Fresh meat to the value of over $600,000 a year is being imported into Manila, exclusive of that used by the army and navy. There are excellent ranges for cattle and a great variety of fodder plants which grow luxuriantly. The secretary is confident that properly conducted cattle ranches would yield very large returns.

UNITED STATES DEPARTMENT OF AGRICULTURE.

Owing to increased financial resources, the work of the department was materially enlarged during 1902. Its efficiency was also increased by the partial reorganization effected during the year, which involved the establishment of the bureaus of plant industry, soils, chemistry, and forestry, and the rearrangement of the work of the office of experiment stations on the same basis as that of the bureaus. The annual appropriation for the department for the fiscal year ending June 30, 1903, is $4,503,960 (as compared with $3,862,420 the previous year), exclusive of the regular appropriation of $720,000 for the State agricultural experiment stations. On July 1, 1902, the number of its paid employees was 3789, of whom 2081 were classed as scientists and scientific assistants. During the fiscal year 1902 it issued 757 publications, aggregating 10,586,580 copies, of which 6,150,000 copies were *Farmers' Bulletins.* It is estimated that the cost of printing and transporting these publications was about $1,000,000. Among the important features of the work of the department during 1902 are the following: The Weather Bureau extended the distribution of daily forecasts through the rural mail delivery as far as its funds would permit, and continued experiments in wireless telegraphy with a good degree of success. Antemortem inspection of animals by the Bureau of Animal Industry aggregated nearly 60,000,000 animals, and the meat inspection stamp was affixed to over 23,000,000 packages of meat products. An inspection of dairy products offered for export was inaugurated under an act of Congress, passed March 20, 1902. Over 1,500,000

doses of black-leg vaccine were distributed during the year, and reports show that its use reduced the loss of cattle to 0.51 per cent. of those vaccinated. Near the end of the year, as stated above, the bureau was active in preventing the spread of the foot-and-mouth disease in New England. Special efforts were made by the Bureau of Plant Industry to extend the exports of fruits and vegetables. Important practical results were obtained from studies of pear blight and the 'little peach' disease. The development of a variety of cotton resistant to wilt disease is now believed to be an assured fact, and a variety of cowpea was discovered resistant to wilt and to root knot. Several varieties of long staple cotton of good quality and productiveness were produced, and it is believed that these can be made permanent. A simple, cheap and satisfactory method of growing and distributing root-tubercle bacteria for all the important leguminous crops was perfected. Encouraging success was attained in efforts to extend the growth of alfalfa in the Northern States, where a substitute for clover is desired. Successful efforts were made to reduce the cost of tea production on the experimental plantations at Summerville, S. C., and better grades of tea were produced by improved factory methods. Nine thousand pounds of commercial tea were produced, most of which ranks with the high-grade imported kinds. The success of the experiments with macaroni wheat has already been mentioned. Extensive experiments were inaugurated to determine the best methods of fruit storage, and methods were discovered by which the injury through 'scald' in storage may be materially lessened. Agricultural explorations were continued in India, China, Japan, and other countries. Among the valuable recent introductions are hardy Russian varieties of winter wheat, Egyptian or berseem clover, and the Jordan almond. The Bureau of Forestry furnished working plans for nearly 400,000 acres of private lands, and has become the official adviser of the secretary of the interior in matters of forest policy for the national forest reserves covering over 60,000,000 acres (see FORESTRY). A less injurious method of turpentine orcharding than that hitherto employed was discovered. The Bureau of Soils surveyed and mapped during 1902 over 14,500 square miles, or about 10,000,000 acres. Over 14,500,000 acres have been surveyed in all, the work having been done in twenty-five States and Territories and in Porto Rico, at a total cost of less than $3 per square mile. The methods of analyzing soils in the field have been perfected. The continued success of the experiments in growing Sumatra tobacco under shade has already been mentioned. The Bureau of Chemistry continued the study of adulterated foods and undertook an elaborate investigation to determine the effect of borax and other preservatives on the nutritive value and healthfulness of foods by digestion experiments with human subjects. The Division of Entomology studied the San José scale in Japan and China, with special reference to the importation of its ladybird enemy. Other important investigations were those on the Mexican cotton-boll weevil, codling moth, and forest insects. The culture of the Smyrna fig in California with the aid of the fig-fertilizing insect, has proved successful. Silk culture is again being systematically investigated. Work under the Lacey act, for the protection and preservation of game, was continued by the Biological Survey. Studies on the nutritive value of cereals, meats, and fruits, and experiments with men in the Atwater-Rosa respiration calorimeter, with special reference to the relation of diet to muscular energy, were continued by the Office of Experiment Stations. The same office enlarged its studies on irrigation. (See IRRIGATION.) It also began investigations on drainage, the use of various kinds of power in agriculture, farm machinery and other subjects included in agricultural engineering. The Office of Road Inquiry was active in its propaganda to stimulate public interest in the building of good roads in different parts of the country.

AGRICULTURAL EDUCATION.

The most important feature in the progress of agricultural education in the United States during 1902 was the successful institution of a graduate school of agriculture, which held its first session during July at Columbus, O., under the auspices of the Ohio State University and in cooperation with the United States Department of Agriculture and the Association of American Agricultural Colleges and Experiment Stations. Dr. A. C. True, director of the United States Office of Experiment Stations, was made dean of the faculty, which consisted of thirty-five instructors, of whom twenty-six are professors in agricultural colleges, seven are leading officers of the Department of Agriculture, and two are officers of the New York State Experiment Station. The seventy-five students drawn from twenty-eight States and Territories included twenty-seven professors or assistant professors in agricultural colleges, and thirty-one assistants in colleges or experiment stations. Courses were given in agronomy, zootechny, dairying, and breeding of plants and animals, and conferences were held on important topics connected with the more definite formulation of the science of agriculture and agricultural pedagogics. It is believed that the influence of this school will be felt throughout our whole system of

agricultural education and research, and it is hoped to make it a permanent feature of the American system of education in agriculture.

Among the agricultural colleges there was considerable progress during 1902 in strengthening and specializing the courses in agriculture. At the University of Illinois the College of Agriculture has a faculty of twenty-six instructors and investigators in agronomy, horticulture, zootechny, dairying, and veterinary science, and there are special courses in farm machinery, drainage, soil bacteriology, breeding, etc. The Minnesota College has added a new line of work—instruction and laboratory exercises in cutting and curing meat. Courses in agricultural economics have been given at the University of Wisconsin and in rural sociology at the University of Michigan. College extension work, largely through correspondence courses, is receiving increased attention at the agricultural colleges. These institutions are also issuing a constantly increasing number of popular bulletins, press bulletins, leaflets and periodicals. The State legislatures meeting in 1902 made unusually liberal appropriations for maintenance and new buildings at these colleges. Universities and colleges receiving the benefits of the acts of Congress of July 1, 1862, and August 30, 1890, are in operation in all the States and Territories, except Alaska, Hawaii, and Porto Rico. The total number of colleges maintaining courses in agriculture is sixty-three; the aggregate value of the permanent funds and equipment of the land-grant institutions in 1902 was $67,544,888, of which $3,484,200 was added in 1902; their income was $9,166,272. Out of a total attendance of 46,699 students, 6299 were in courses in agriculture.

Interest in the movement for the establishment of secondary agricultural schools and courses continues to increase. In Wisconsin the law passed by the legislature in 1901, authorizing county boards "to appropriate money for the organization, equipment and maintenance of county schools of agriculture and domestic science," has already borne substantial fruit. Two schools, established under this act, opened their doors to students in October, 1902. One is located at Menomonie in Dunn County. It is equipped with a substantial brick main building, erected by the county for the joint use of this school and the county teachers' training school, and a frame building for shopwork, which with the grounds surrounding the school cost $5,000. The farm work is done on the county asylum farm, one mile away. The regular course of farm study occupies two years, and, besides many of the subjects ordinarily pursued in high schools, includes the following: For boys—soils, fertilizers, plant life, horticulture, field crops, animal husbandry, dairying, poultry, economic insects, farm accounts, blacksmithing and other metal work, carpentry and rural architecture; for girls—sewing, cooking, home economy and management, drawing, domestic hygiene, chemistry of foods, dairying, poultry, farm accounts, and horticulture. About fifty students were in attendance at the first session, coming with few exceptions from the country schools. The other agricultural school is located at Wausau in Marathon County. The buildings and equipment for this school cost $20,000, and the school grounds cover six acres. Over sixty students are in attendance.

The agricultural high schools connected with the agricultural colleges in Minnesota and Nebraska continue to be largely attended. At Winona Lake, Ind., an agricultural and technical institute of high school grade has been opened, and at Groton, Mass., a school of horticulture and landscape gardening for women has been established. The Briarcliff School of Practical Agriculture and Horticulture has been moved to a farm of 415 acres near Poughkeepsie, N. Y. Instruction in agriculture was given in the three normal schools of Missouri in 1902 to about 300 students. Practical courses in agriculture are being given with increased efficiency in a number of institutions for negroes in the Southern States, notably at Hampton, Va., and Tuskegee, Ala. The course of study for the Indian schools conducted by the United States government has been changed to include the teaching of the theory and practice of agriculture in all the grades. The committee on methods of teaching agriculture of the Association of American Agricultural Colleges has published a report (Circular 49, U. S. Office of Experiment Stations), in which tentative agricultural courses for the public high schools are outlined.

Marked progress has been made in the movement for the consolidation of the rural common schools, and along with this there is much agitation for the introduction of simple lessons on agricultural subjects in these schools whenever the employment of competent teachers makes it possible to enrich the course of study. School gardens are being established in many places, but more especially in towns and cities. The United States Department of Agriculture is making a special distribution of seeds for such gardens. The University of Illinois has organized a number of young people's clubs to cooperate with the college of agriculture in various lines of agricultural practice and experimentation. In 1902 these clubs tested seed corn and growing corn or flowers, in competition for premiums. The records of these tests are sent to the college for tabulation and report.

Farmers' institutes were held during 1902 in forty-four States and Territories,

including Hawaii. In all, about 2700 institutes were held, with a total attendance of about 800,000 persons. A successful meeting of the American Association of Farmers' Institute Workers was held at Washington, D. C., in June, 1902, the proceedings of which were published by the Department of Agriculture. A central agency for the promotion of the interests of the Institutes has been established in the United States Office of Experiment Stations.

AGRICULTURAL EXPERIMENT STATIONS.

The Office of Experiment Stations published in 1902 a bulletin containing accounts of about 720 agricultural experiment stations, and kindred institutions in fifty countries outside of the United States. This demonstration of the world-wide extent of the experiment station movement is especially interesting in view of the fact that during the same year the station at Moeckern, Germany, which was the first regularly organized under government auspices, celebrated the fiftieth anniversary of its foundation. These scientific agencies for the promotion of agriculture, which for the most part are government institutions, are now in operation in every country of Europe except Greece and Turkey. In Asia there are stations in Russian territory and in Japan and British India. Africa has a rather large number in the British, French, and German colonies. In South America there are stations in Brazil, Argentina, Chile, Paraguay, and British Guiana. There are none in Mexico or in Central America, except in British Honduras, where a botanic garden is located. Canada, Australia, New Zealand, and the British West Indies, have a considerable number of stations. The United States has sixty stations, including those recently established in Alaska, Hawaii, and Porto Rico. The largest number of separate agencies for experimentation in agriculture are found in Russia, where there are over 100 such establishments. Many of these, however, consist chiefly of small demonstration fields, for the instruction of the peasants or the introduction of new agricultural industries. Germany has eighty stations, France seventy-one, Austria forty-one, Sweden twenty-six, Belgium fifteen, but in all these countries the work of a number of the stations is confined to the control of fertilizers, seeds, etc. In the British Isles there are twelve institutions that may be regarded as experiment stations, seven botanic gardens, and ten other institutions that conduct some agricultural experiments.

The Deparment of Agriculture and Technical Instruction for Ireland, organized under the act of Parliament of 1899, has begun to issue reports of its operations. These show that, in addition to a variety of duties pertaining to technical education, lands, fisheries, control of animal diseases, etc., the department is directly promoting education and research in agriculture, largely in cooperation with the different counties and boroughs. In England the Aynsome Agricultural Experiment Station has recently been established at Grange-over-Sands as a private enterprise. Other new enterprises are the seed-control station for forest seeds at Eberswalde, Prussia; an agricultural experiment station at Augustenberg, formed by the union of the chemical and botanical stations formerly located at Karlsruhe; a dairy station at Gembloux, Belgium; and an agricultural physiological station at Prague, Austria. The initial number of a year book summarizing the work of the Russian experiment stations has been issued by the ministry of agriculture and imperial domains of that country; and the British imperial department of agriculture for the West Indies has begun the publication of a fortnightly review, entitled *Agricultural News*.

In the United States during 1902 the sixty stations employed 710 persons in the work of administration and inquiry, of whom 344 did more or less teaching in the agricultural colleges. The total income of the stations was $1,328,847, of which $720,000 was received from the national government and $608,847 from State governments, fertilizer analysis fees, sales of farm products, etc. In addition, the Office of Experiment Stations had appropriations from Congress amounting to $139,000. The value of additions to the permanent equipment of the stations in 1902 is estimated at $262,829, including $175,763 for buildings. The station in Porto Rico has been permanently located at Mayaguez, on a farm of 235 acres, purchased with funds granted by the insular government and the municipality of Mayaguez. A new station has been established in the Copper River region in Alaska, where there are large tracts of land believed to be suitable for agriculture. The Kansas Experiment Station has recently come into possession of 3500 acres of the Fort Hays Reservation, and has established there a sub-station, supported by State funds. In a similar way new sub-stations have been established at Troupe, Tex., and McNeill, Miss. An interesting enterprise of a novel character is the experiment station conducted by the company publishing the *Agricultural Epitomist*, on a farm of 500 acres near Spencer, Ind. Evidences of the influence of station work in improving the agricultural practice of the country continue to multiply. A few examples, selected from a large number recently collated by the Department of Agriculture, may serve to illustrate the importance of these research institutions as factors in the economic progress

of the United States. The origination and introduction of improved varieties of cereals through the agency of the stations in the chief grain-growing regions, co-operating with the department, is resulting in a great increase in the grain-producing capacity of this country. For instance, a single variety of oats, imported by the department and improved by the Wisconsin Station, has been widely distributed, with results which indicate that its general introduction will be followed by an average increase of yield amounting to from three to five bushels per acre. One of the results of the successful work of the Illinois Station in breeding corn so as to vary its content of protein, oil, and starch, according to the requirements of different industries, has led to the formation of the Illinois Seed Corn Breeders' Association, pledged to select and grow their seed corn according to definite rules formulated by the station, and thus far the demand for these improved varieties of corn has far outrun the supply. The influence of the station investigations is also being widely shown in the grain-growing region by the introduction of rotations of crops, to conserve soil fertility, a matter of immense economic importance, in view of the rapid depletion of the soils of that region through the continuous grain cropping heretofore generally practiced. The beneficial effects of the work of the stations in the older States on fertilizers are every year becoming more apparent, as shown in the economical purchase and intelligent use of fertilizers by farmers. The home mixing of fertilizers in accordance with instructions issued by the stations is becoming an important factor of progress in this line. The recent introduction of the inspection of feeding stuffs under station auspices is proving an effective means of protecting farmers against fraud, and is increasing their attention to the economical purchase of concentrated feeds and the balancing of rations with the cheaper home-grown products. The rapid extension of the use of silage and the very general adoption of the round silo are directly traceable to experiment station influence. Through the efforts of the department and the stations, the application of insecticides and fungicides, as means of protection against injurious insects and plant diseases, has become general, and the benefits and profits resulting from this practice are no longer questioned by intelligent farmers. In Wisconsin, for example, a method of formaldehyde treatment of oat smut, proposed by one of the stations, was almost immediately put into use by over 25,000 farmers in that State alone. The demonstration by the Utah station that certain lands lying above the irrigation ditches could, by careful methods of tillage, be made to produce crops without irrigation, has led to a system of 'dry farming' on large tracts formerly regarded as fit only for grazing and this, together with the studies now being made by the stations in the West and in the Office of Experiment Stations regarding the amounts of water actually required by various crops, will be an important factor in the agricultural development of the arid region.

The first report of the Bureau of Agriculture of the Philippine Islands has recently been published by the War Department at Washington. The bureau is under the direct management of Prof. F. Lamson-Scribner, formerly agrostologist of the United States Department of Agriculture. With him are associated experts in botany, soils, plant culture and breeding, farm machinery and farm management, fibres and tropical agriculture, and investigations along these lines have been begun. Seed distribution has been undertaken, and a station for the testing of seeds and the growing of introduced plants and trees, has been established at Manila. Experiments with cocoanuts, abacá, manila hemp and cacao have been undertaken at San Ramón farm, in the district of Zamboanga, Mindanao, with a view to demonstrating that the island lands may be profitably used for growing staple crops. In co-operation with General Bell in Batangas province, demonstration experiments are being made in the use of American machinery and farm methods for the growth of alfalfa, teosinte, cotton, tobacco, sugar, and other staple crops. At Bagnio, preliminary experiments with American vegetables are being made with reference to the desirability of establishing a station there, since the climate is said to be suited to a great variety of tropical, sub-tropical, and temperate zone plants. An experiment station for rice will be established near the centre of the great rice-producing region, extending from Manila to Dagupan. The publication of bulletins in both English and Spanish has been begun.

AIR-SHIP. See Aerial Navigation.

ALABAMA, one of the Gulf States of the United States, has an area of 52,250 square miles. The capital is Montgomery. Alabama was organized as a territory March 3, 1817, and admitted as a State, December 14, 1819. The population in 1900 was 1,828,697, while in June, 1902, as estimated by the government actuary, it was 1,894,000. The population of the three largest cities in 1900 was: Mobile, 38,469; Birmingham, 38,415; Montgomery, 30,346.

Finance.—The balance in the treasury, at the close of the fiscal year ending September 30, 1901, was $501,359.30. The receipts for the fiscal year 1902 were $2,908,-

714.37, and the disbursements $2,680,721.81, leaving a balance of $729,351.86. The main items of revenue and the amounts derived therefrom were: State taxes of 1901, $2,171,680.46; other State taxes of former years, $259,638.81; solicitors' fees, $39,277.92; insurance fees, $66,981.48; a privilege tax on express, telegraph, and sleeping car companies, $11,339.32; from the secretary of state, $161,367.53; license fees on railway companies, $12,205.14; and from the hiring out and earnings of convicts, $194,412.58. As the cost of maintaining the convict department was only $94,388.12, a balance of $100,024.46 remained, applicable in accordance with a legislative act of 1901 to the uses of the State treasury. At the end of the year, the bonded debt of Alabama was $9,357,600, bearing annual interest of $448,680.

Agriculture and Industries.—This State, known as the "Cotton State," showed during 1902 a greater development in its manufacturing, mining, and commercial industries, than in the production of cotton and other agricultural products. The cotton crop, however, with apparently poor prospects, reached a production estimated at 1,200,000 bales, as compared with 1,078,000 in 1901. The acreage of corn was 2,764,717, with a total production of 23,223,623 bushels. Oats at 10.9 bushels per acre, amounted to 2,320,141 bushels, being about 80 per cent. of the average crop. The Department of Agriculture estimated the value of the State's farm animals on January 1, 1903, as follows: Cattle, $7,347,670; sheep, $330,558; swine, $5,102,500. Other industries showed considerable development. The construction of new railway lines opened up new mining territory in the north. With new iron-ores available and a good market for iron and steel products, new mills were speedily erected and coal mines were called upon for increased output. The coal mines were worked steadily during the summer of 1902, except for a short strike of two weeks' duration in July, and the output for 1902 exceeded 10,000,000 tons. In coke production Alabama was exceeded only by Pennsylvania. The iron-ore mined amounted to 3,500,000 tons, and the normal increase in production of pig-iron was doubled. The city of Mobile increased greatly in importance as a commercial centre. The Mobile, Jackson and Kansas City Railroad pushed north to Hattiesburg, Perry county, Miss., and considerable new timber and mining territory was opened up thereby. If the line is continued farther west, quantities of grain will soon be exported via Mobile. Three new ocean steamship lines were established in 1902, with Mobile as a terminal port. Fruit was a principal item in Mobile's imports, over 300 cargoes entering in 1902. The textile industry continued to expand, and the manufacture of cloth is rapidly superseding that of yarn. Five new cotton mills and several new knitting mills were built in 1902. Employment of children in these mills is more and more decried, and many employers say they would welcome its prohibition, if made general throughout the South. (See CHILD LABOR.) In Alabama, the manufacture of steel rails was begun on a large scale in 1902, as well as that of several small iron products formerly manufactured only in the North and East. Three furnaces, with a capacity of 300 tons of pig iron a day, were started, and the Republic Iron and Steel Company began the construction of a furnace, the capacity of which will be 1000 tons a day. The latest improved machinery was installed in many plants and the cost of labor reduced 20 per cent. in all. The Tennessee Coal, Iron and Railroad Company expended $1,000,000 for new machinery, and $1,500,000 for a modern street-car system in Birmingham. The sum of $2,000,000 was invested in the large power plant on the Alabama River, near Montgomery, and $3,000,000 in new cotton mills at Huntsville. The Alabama Steel and Wire Company expended $10,000,000 in the construction of a new steel plant at Gadsden, and $250,000 in a furnace at Valley Head. The iron and steel industry was very active in the Birmingham district, the payrolls of the district having increased 15 per cent. over 1901, and the volume of wholesale and retail trade fully as much.

The miners employed at Blockton by the Tennessee Coal, Iron, and Railroad Company, about 3000 in number, struck on October 6, 1902, because the company would not discharge certain members of the Miners' Union, who had refused to pay $1 per month toward the support of the Pennsylvania Anthracite strikers. The company also refused to take that amount from the wages of the men, as demanded by those who were willing to pay. The strikers were strongly condemned in many quarters for their action, and finally returned to work without gaining their point.

Political.—Under the suffrage provisions of the new State constitution, a great change has been wrought. The State contains nearly as many negroes as whites, but in the August registration about 180,000 white voters registered, and only 2500 blacks. In Montgomery County, with 52,000 negro inhabitants, only 27 negroes registered. Ex-Governor Joseph F. Johnston endeavored to obtain the Democratic nomination for Governor on a platform that opposed negro disfranchisement, but was badly defeated by Governor William D. Jelks, who represented the sentiment in favor of the new constitution. One of the most significant events of 1902 was the endorsement, in effect, by the white Republicans, of the suffrage provisions of the

new constitution. The Republicans held a meeting on August 4th, at which they resolved that "Only those shall be permitted to participate in the State and County Conventions who are duly qualified voters under the new Constitution of Alabama." In September, at the Republican State Convention, this resolution was approved and accepted. In November, President Roosevelt appointed Joseph O. Thompson, collector of internal revenue for the District of Alabama, to take the place of Julian H. Bingham, removed for activity in organizing the "Lily White" Republican party, whose State Convention excluded negro delegates, supposedly only on account of their color. Postmaster-General Payne, in defining the President's attitude in this case, said that "Neither the administration nor the Republican party in the North will stand for the exclusion of any section of our people because of their race or color."

Conventions and Platforms.—The Democratic primaries were held on August 25th, the majority of Jelks over Johnston being 20,000. The Republicans nominated J. A. W. Smith for governor. The Republican platform indorsed the President and urged his renomination; favored the organization of labor for its legitimate protection and the enactment of laws for the peaceable and fair settlement of disagreements by arbitration. The convention favored legislation regulating the labor of children in cotton mills; condemned the "spirit which seeks to arouse a prejudice of the people against the railroads"; advocated the "enactment of laws so regulating the railroads as to adequately protect the interests of the people," but expressed opposition to any drastic measures; endorsed the Dingley tariff law; advocated legislation to secure an inter-oceanic canal, and praised the bravery and heroism of our soldiers and sailors in the Philippines.

Elections.—At the regular quadrennial State election held August 4, 1902, a full Democratic State ticket was elected. For governor, Jelks (Dem.), received 67,763 votes; and Smith (Rep.), 24,342. The State legislature in 1902 was overwhelmingly Democratic. The legislature for 1903 consists of 138 Democrats and two Republicans, both members of the lower house.

Other Events.—Fire in the wholesale business section of Mobile, on January 25, 1902, destroyed property to the value of $300,000. The State suffered from the effects of the great storm that swept over the South in February; winds and floods did an immense amount of damage. Gadsden and vicinity were visited in March by the severest storm known in years. Some sections of the city were completely under water, the power-house was flooded, and the city thrown into utter darkness. At Tuscumbia, on April 6th, Will Reynolds, a negro, was killed after shooting nine of the sheriff's posse. His body was then burned. An excursion train on the Southern Railway, near Birmingham, going at the rate of thirty miles an hour, on September 1, was derailed and plunged down an embankment; twenty-one men were killed and eighty injured. During the session of the National Negro Baptist Convention at Birmingham, at which Booker T. Washington was speaking, on September 19th, a panic and stampede caused the death of 115 persons and injuries to a much larger number. At Littleton, on October 19th, a race riot, in which eight negroes and three whites were killed, occurred.

State Officers.—For 1902: Governor, William D. Jelks; secretary of state, R. P. McDavid; treasurer, J. Craig Smith; auditor, T. L. Sowell; attorney-general, C. G. Brown; superintendent of education, J. W. Abercrombie; commissioner of agriculture, R. R. Poole; commissioner of insurance, E. R. McDavid—all Democrats. For 1903: Governor, William D. Jelks (elected for four years, term ending January, 1907); lieutenant-governor, R. M. Cunningham; secretary of state, J. T. Heflin; treasurer, J. Craig Smith; auditor, T. L. Sowell; attorney-general, Massey Wilson; superintendent of education, I. W. Hill; commissioner of agriculture, R. R. Poole; commissioner of insurance, E. R. McDavid—all Democrats.

Supreme Court in 1902, and until November, 1904: Chief justice, Thomas N. McClellan; associate justices, Jonathan Haralson, John R. Tyson, Henry A. Sharpe, and James R. Dowdell—all Democrats.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

ALASKA, an incompletely organized Territory of the United States acquired by purchase from Russia in 1867, and governed under a civil code passed by Congress in 1900. The total area of Alaska is approximately 599,446 square miles, or one-sixth of the whole territory of the United States. The population in 1890 was 32,142, and in 1900, 63,592, of whom 25,536 were natives. In June, 1902, the population was estimated by the government actuary at 73,000. There were, in 1900, four cities of more than 1000 inhabitants; namely, Nome, 12,486; Skagway, 3117; Juneau, 1864; and Sitka, 1396. Alaska constitutes, by act of 1900, a federal judicial district with three divisions. No delegate is sent to Congress, neither is there any local legislature. The seat of administration is Sitka.

Agriculture, etc.—Experiments carried on during 1902 showed that rye, flax, and wheat can be grown successfully in Alaska. Potatoes and garden vegetables mature well. Hardy varieties of apples, pears, and small fruits thrive well. The United States government has introduced the reindeer into Alaska as a draft and food animal, and the Eskimos have been taught to care for them properly. The total number of domestic reindeer in Alaska, June 30, 1902, was about 7000.

Mining.—The gold-mining industry in Alaska made steady progress during 1902, although the working season was dry and the lack of water for sluicing was a considerable handicap. Pumping plants have been installed, and a small canal, 22 miles in length, to cost about $1,000,000, was surveyed, to carry water to the diggings on Ophir Creek. Placer grounds of great importance were discovered on the tributaries of the Copper and Nazina rivers, and at Rampart, a settlement on the Yukon. Reports from all parts of the country were favorable, and it was estimated that the gold output for the year 1902 would amount to $7,823,793. The gold quartz lodes in the Nome region, in the district around Dawson and on Douglas Island, are being successfully developed. See GOLD.

Valuable deposits of copper have been discovered, and during 1902 a large number of new claims were developed on Prince of Wales Island. Bodies of rich copper ore have been discovered beyond the coast range, especially in the Copper River Valley, but their development is not likely to be undertaken until after the construction of a railroad through the region, as it would be impossible at present to haul the ore to a place of shipment. Tin ore has been discovered near Cape York on the Seward peninsula. Deposits of coal are well distributed through the territory, but are not mined to any extent as yet. Petroleum has been discovered on Comptroller's Bay and in the region around Lake Iliamna on the Alaskan peninsula, and prospects for its becoming a valuable product are said to be good. In his annual message for 1902, Governor Brady recommended the establishment of a department of mines for the Territory, with a commissioner and staff of mineralogists and assayers, in order that exact and comprehensive information regarding the mineral deposits of the Territory may be obtained.

Other Industries.—One of the most important industries of the Territory is its fisheries. The salmon pack for 1902 exceeded in value the amount of the original purchase price of Alaska. Much attention was given to the breeding of salmon in order that the numbers may not be depleted. On the fur seal islands, St. George and St. Paul, 22,304 seals were killed in 1902. The great growths of timber in Alaska are hemlock, spruce, yellow cedar, and red cedar. In the southeast the hemlock and the spruce grow everywhere on the mainland and upon the islands. Only a small percentage of the lumber which is now used in Alaska is cut in the Territory. The total value of the skins—bear, otter, mink, fox, lynx, beaver, and wolf—taken annually, is large. Fox farming is tried in many places, but the blue fox is the only one which can be domesticated.

Public Lands.—The difficulty of securing titles to land is hampering progress in general, and is a great check to the development of agriculture. Even railroad companies hesitate to build, as no encouragement is given to people for settling on the lands. The homestead laws of the United States apply only to lands which have been surveyed, and thus far not an acre has been marked out for settlement. In 1901 the sum of $5,000 was apportioned to Alaska for public surveys. The law fixes the maximum price for this kind of work, but no surveyor who is acquainted with the conditions in that part of the country felt that he could afford to undertake the survey even at the highest rate allowed. The coal-land laws were extended in June, 1900, but, like homesteads, coal must be located upon surveyed lands. At Cook Inlet coal fields, and at Comptroller's Bay and elsewhere, large amounts have been invested in the development of mines and the building of wharves, railway tracks, etc., but there is no assurance of title nor security of tenure. In reference to the homestead laws, it is the governor's opinion that there is no reason why a man, who is enterprising enough to strike out to Alaska should be limited to eighty acres, when everywhere, since the homestead laws were created, a settler has been allowed at least 160 acres. According to statistics, 50,000 people from Minnesota and the Dakotas have emigrated into Manitoba—people who might have gone to Alaska had the laws offered any security of title.

Communications.—General corporations were formed in 1902 for the construction of railroads. Preliminary filings were made with the secretary of the interior under the law of May 14, 1896, providing for right of way for railroads in Alaska. One company selected Valdez as one terminal, and proposes to build a standard-guage road with branches along the Copper River Valley and across the divide to Eagle City. Preliminary work was begun during the season of 1902 by surveyors and engineers. Another company has projected a road from Resurrection Bay on the southern coast of Kenai Peninsula cutting across toward the Yukon. Two rival companies made arrangements to start in at Iliamna Bay near the entrance of Cook

Inlet and run lines in a northwesterly direction toward Nome and Bering Strait. The railroads will be a great factor in the development of Alaska. At present the charges by pack trains from supply depots on the coast to interior camps, run as high as $1.25 per pound. A military telegraph system connects the principal towns and posts in the Territory.

Education.—The schools in the incorporated towns during 1902 were doing well, as the law provides sufficient money to conduct them up to a certain standard. There are twenty-eight public schools in the Territory. The school work was placed under the care of the United States Bureau of Education and Congress made appropriations each year for their maintenance until 1901, when the House Committee on Appropriations refused any more money for this purpose. The civil code, approved June, 1900, provided that license fees should be exacted from the various business concerns operating in the Territory. Outside of incorporated towns, one-half the amount of these licenses minus the expenses for the maintenance of their courts was to be used for educational purposes. This has hampered the schools outside of the incorporated towns owing to the uncertainty of the amount of the license money. The economical policy has been discouraging, and the bureau has had to turn a deaf ear to all petitions for new school buildings and teachers for distant communities where children are sadly in need of instruction.

Needs of the Territory.—The most urgent need of Alaska is the granting of general land laws so as to encourage the homeseeker and the industry of agriculture. This would bring the base of food supplies within Alaska's own borders instead of 1000 miles away, as is at present the case. The great majority of the people believe that Alaska should be represented by a delegate to Congress to persist in bringing measures for Alaska's welfare before the committees, look after the interest of her citizens before the Department of the Interior, and occasionally enlighten the House when it has Alaskan matters before it. The governor strongly advises a commission to settle the titles at Sitka. There has been no accurate survey from any initial point since the date of the transfer. The people are holding their possessions upon certificates which were signed by the commissioners twenty-five years ago, and which they had no authority to sign. The growth of the town is thereby naturally hampered.

The work of the coast and geodetic survey needs to be extended, and more aids to navigation, furnished by the lighthouse board, are imperatively demanded. Railways, wagon-roads, and trails are much needed, and the people are anxious to have the government open new roads. What the government has already done through the War Department in the making of the Trans-Alaskan military road from Port Valdez to the crossing of the Tanana River, a distance of 265 miles, has been an immense help to all prospectors, miners, and traders in that region.

Judiciary Scandal.—The scandal in which Judge Noyes was involved in 1901 was ended on January 6, when he and others who entered into a conspiracy with Alexander McKenzie, president of the East Alaska Gold Company, to take possession of the richest Nome mine were sentenced. The fine imposed on Judge Noyes for contempt was $1,000. District-Attorney Joseph K. Wood was sentenced to four months' imprisonment, and his assistant, C. A. S. Frost, was sentenced to imprisonment for one year.

Other Occurrences.—During April and May there were several eruptions of the Mount Redoubt volcano, which is situated to the northwest of Cook Inlet. The ashes were carried to a distance of 50 miles. Mount Blackburn also became active. Earthquakes resulting from this cracked the surface of the Muir Glacier. During the summer, the remains of a mammoth were found at Keewalik, 300 miles northwest of Nome; the tusks were 12 feet long and weighed 170 pounds each.

ALASKAN BOUNDARY QUESTION. Reports, in December, 1902, of the renewal of negotiations at Washington between John Hay, secretary of state, and Sir Michael Herbert, the British ambassador, looking toward a settlement of the long-standing dispute over the Alaskan boundary, foreshadowed the probable early signing of a treaty satisfactory to both Canada and the United States. The conflicting claims of Great Britain and the United States as to the boundary line between Canada and the Alaskan territory centre in the interpretation of two clauses in a treaty entered into between Russia and Great Britain in 1825. These articles—numbers 3 and 4 of the treaty—defined the boundary between the Russian and British possessions in America, article 3 describing the course of the line, and article 4 containing a more explicit statement as to the interpretation of article 3. It is upon the interpretation of this interpretation that the whole question rests. The article reads as follows:

"Article IV.—With reference to the line of demarcation laid down in the preceding article, it is understood—First, that the island called the Prince of Wales Island shall belong wholly to Russia. Second.—That wherever the summit of the mountains, which extend in a direction parallel to the coast, from the 56th degree

of north latitude to the point of intersection of the 141st degree, shall prove to be at the distance of more than ten marine leagues from the ocean, the limit between the British possessions and the line of coast which is to belong to Russia as above mentioned, shall be formed by a line parallel to the windings of the coast, which shall never exceed the difference of ten marine leagues therefrom."

In 1867 Alaska was purchased from Russia by the United States, who thereby assumed, in regard to the boundary, the position formerly occupied by Russia. Up to that time there had never been any suggestion of a difference of opinion as to the boundary line, a situation possibly due to some extent to the fact that the region was then but little known. Very soon after the purchase by the United States, however, steps were taken looking toward a demarcation of the boundary line. In 1872 the legislative assembly of British Columbia passed a resolution requesting the Dominion government to take steps toward starting a survey of the line, and in December of the same year President Grant, in his annual message, recommended the appointment of an international commission to define the boundary. No action was taken on either the legislative resolution or the President's recommendation, however. In 1886 a joint commission was again proposed, and in 1888 conferences were held between representatives of the United States and Canadian governments, and finally, in 1892, a convention was entered into for a joint survey in order to ascertain the data necessary for the permanent delimitation of the boundary line. The surveys were completed, but no recommendations made as to the boundary line. It was not until after the rush to the Klondike gold fields in 1896, that the matter appeared of enough importance to the Canadian authorities to call for a formal protest against the American occupation and control. By the protocol of May, 1898, the matter was one of the subjects referred for settlement to the Joint High Commission, which, however, adjourned without coming to any agreement. On December 20, 1899, a *modus vivendi* was agreed upon providing for a temporary boundary line. By the terms of this agreement which was, on the whole, to the advantage of the United States, the line was placed at 22½ miles above Pyramid Harbor, which shut off the Canadians from a shipping point on the Lynn Canal, and made no concessions for a free port or free transfer of Canadian goods through American territory. On this *modus vivendi* of 1899, the matter has rested.

The dispute turns principally on the interpretation of the words "a line parallel to the windings of the coast," contained in article 4 of the Anglo-Russian Treaty of 1825. The United States claim rests upon a literal interpretation of the words, assuming that the treaty gave Russia control of all the coast of the mainland, and that the coast line followed the windings of the coast, even to the head of the longest inlets. And this contention seems to be borne out by a perusal of the existing accounts of the negotiations preceding the Treaty of 1825, by both British and Russian maps of the region, and by the complete acquiescence of the British and Canadian authorities in the American occupation until after the opening of the Klondike. The British and Canadian contention is based on their assertion that the line as designated in the Treaty of 1825, was not meant to follow the actual windings of the coast, but rather to follow the general trend of the coast, cutting across the headlands of some of the bays and inlets, particularly the Lynn Channel, and thus giving them access to the tide-water. The Canadian government has pressed for a settlement of the question by arbitration, in which they were willing to make the concession that arbitration should be based on the same principle as that in the Venezuelan case—namely, that title should be considered as being made good by a proof of fifty-year holding, the term "holding" to be regarded as meaning political administration whether the region was actually settled or not. The United States has consistently refused to arbitrate, declaring that the Venezuelan and Alaskan questions were not comparable, and furthermore that it was against the policy of the United States to arbitrate a question involving territory that had been so long occupied by American citizens and tacitly acknowledged as belonging to them.

ALBANIA, a region of European Turkey lying between Macedonia and the western coast. See TURKEY (paragraph Albania).

ALBATROSS EXPEDITION. See ZOOLOGICAL EXPEDITIONS.

ALBERT, FRIEDRICH AUGUST, King of Saxony, died at Dresden on June 19, 1902. He was born April 23, 1828, at Dresden, and began his military career at fifteen years of age as an ensign. Afterwards he entered the University of Bonn, and was a diligent student, especially of military science, until 1848, when he rejoined his regiment. In 1849 he took part in the Danish war, and won high praise for bravery. Upon the accession of his father, John, in 1854, he became crown prince and president of the council. As commander-in-chief of the Saxon forces he took the field in the war between Prussia and Austria in 1866, when Saxony allied with Austria, and commanded with distinction at the battles of Münchengrätz and Königgrätz. On the formation, the same year, of the North German Confederation, Sax-

ony was included, and the army formerly commanded by the Prince Albert became the twelfth corps in the army of the confederation. In the Franco-Prussian war his services were highly important. At the battle of Gravelotte he led a brilliant and successful attack upon a difficult French position and commanded the army of the Meuse, which cooperated with the two other German armies in closing upon Sedan. In 1873 he succeeded his father as King of Saxony, and throughout his reign was as ardently devoted to the interests of peace as he had formerly been vigorous and active in the field. He married Caroline, daughter of Prince Gustav of Vasa in 1853. He was succeeded in the kingdom by his brother George (*q.v.*).

ALCOHOL continued in 1902 the subject of much experimentation, chiefly in the direction of determining its food value in health and disease. The consensus of opinion seems to be that while alcohol possesses a certain value in retarding tissue waste, in febrile or wasting diseases, its use in health is unnecessary. Dr. A. Ott, of Germany, after studying its effects in tuberculosis, concludes that alcohol in fever, as in health, tends to decrease the destruction of albuminous tissue to a degree equal to that of iso-dynamic amounts of carbohydrates, and that it is not a satisfactory food-stuff because we have better at our command; but when used in moderate amounts in febrile subjects it has no unfavorable effect, and particularly in chronic diseases of the lungs, when associated with depression, may do good. Arthur Clopatt, of Berlin, conducted some experiments to show the effects of alcohol assimilation and found that it consumed nitrogenous materials, and that it had no appreciable effect upon the absorption of food in the intestines. F. S. Bennett, of England, finds that alcohol does not influence nitrogenous metabolism when given in moderate amounts any more than does fat, that it frequently protects the body proteids and fat from consumption, and that in moderate doses it retards many vital processes. Ch. Valentino shows that alcohol acts on the organism as (1) a fluid, (2) a poison, and (3) a dehydrant. As a fluid, it causes a rise in blood pressure and acute dilatation of the heart; as a poison, it is toxic (as shown by Rabuteau, Dujardin-Beaumetz, and Audigé) in proportion to the number of CH_2 groups contained; its dehydrating action is particularly manifested in acute alcoholism, drunkenness being the result of its toxic and coma of its dehydrating action. He concludes that it is much more dangerous to drink a given amount of alcohol without water than well diluted. R. W. Jones, of England, as the result of his investigations into mental dissolution in relation to alcohol, finds that the forms of insanity that result most frequently from drinking are: (1) amnesic; (2) delusional; and (3) chronic varieties which end in dementia.

ALEXANDER, Mrs. ANNIE, the pen-name of Annie Alexander Hector (*q.v.*).

ALFONSO XIII., King of Spain, was enthroned on May 17, 1902, having attained his majority on that day. He was born May 17, 1886, six months after the death of his father, Alfonso XII. His education, under the supervision of his mother, Queen Christina, who acted as regent during his minority, was thorough, and he began his reign under the political tutelage of Señor Sagasta, the veteran statesman whose last term as prime minister was in large part devoted to smoothing away the initial difficulties of the young ruler. His self-control during the enthronement festivities, when several anarchists were arrested for plotting against him, and also during the excitement of the attempted assassination of his grand chamberlain in a royal procession, produced a reassuring impression that has done much to discredit stories about his eccentricities. Since his accession there has been much political agitation, not only because of the industrial difficulties of Spain resulting from the Spanish-American war, but on account of popular dislike of the religious orders. Thus far the popular unrest has not produced any apparent designs against the throne and person of the young king or diminished his popularity. Until the last few years Alfonso's health was delicate, but since coming to the throne his appearance has indicated a more robust constitution. In manner he is frank, though somewhat imperious, and his disposition is said to be kindly. Of his mental capabilities the tests thus far have not been adequate to warrant an opinion as to whether he has the shrewdness and decisive character to deal wisely and fairly with the troubled conditions in Spain; but the presumption afforded by the excellent manner in which he has conducted himself in his youth is altogether in his favor. After his enthronement he visited a number of the Spanish cities.

ALGERIA, a country of northern Africa, on the Mediterranean Sea, between Tunis and Morocco, is usually regarded as a colony, but is administratively a province of France. The capital is Algiers, with 120,000 inhabitants. The three organized departments, Oran, Algiers, and Constantine, comprising Algeria proper, have an estimated area of about 184,474 square miles, but the southern boundary is not well defined and a part of the Sahara, with an area of something like 125,000 square miles, is, for the purposes of administration, attached to Algeria. The total population of the three districts was, in 1901, 4,774,042, divided as follows: Algiers, 1,631,-

476; Oran, 1,103,108; Constantine, 2,039,458. The population of Algiers, the principal town, was 120,000 (1900); Oran, 85,081 (1896); and Constantine, 51,997 (1896). The French population in 1896 numbered 318,137, but has increased very rapidly since that time. In that year there were also resident in the country 446,343 natives of other foreign nations. The population of the Sahara region numbered about 50,000, comprising practically independent nomad tribes. The native population is entirely Mohammedan.

The government is administered by a civil governor-general (M. Paul Revoil since 1901), acting in constant communication with the French ministry. He is assisted by a consultative council and a superior council, composed of delegates chosen by each of the departmental councils, which discusses and votes the annual colonial budget. The legislative power is exercised by the French parliament, in which each department is represented by a senator and two deputies. The colonial revenue, derived largely from customs, direct taxes, and monopolies, amounted, according to the budget estimate for 1902, to 56,470,947 francs, and the expenditure, excluding that for war and marine, to 54,384,662.

The country is largely agricultural, the acreage of the principal crops in 1900 being as follows: Barley, 3,635,995; wheat, 3,293,550; vines (1901), 375,136; oats, 97,836. There are 695,058 acres of cork forests belonging to the State. Silk culture is in a thriving condition, the weight of cocoons produced in 1899 being 25,688,250 pounds. Other important products are olives, esparto, dates, and flax. There are valuable mines of iron, zinc, lead, silver, copper, and coal.

The commerce of the country is largely in the hands of the French. The special commerce in 1900 reached a value of 313,330,000 francs for imports, and 229,364,000 francs for exports. The chief export is wine, the value of which exported to France in 1900 was 50,433,000 francs. In the same year France took cereals to the value of 37,844,000 francs. In 1901 there were 1818 miles of railway open for traffic, and 99 miles of tramway.

History.—The anti-Semitic feeling which, in 1901, resulted in considerable rioting, seemed to have died down considerably during 1902, but a writer in the *Nouvelle Revue* declares that as a purely political movement, it is gathering force. At the same time the Jewish population is increasing at a much greater rate than the French. Elections to the legislative assembly took place on April 27 and May 11, 1902, and resulted in a Republican victory, thus assuring a continuation of the present policy which controls French-Algerian relations. A decree of March 31 marked a step toward a reorganization of local administration by the establishment of rural agricultural boards, with varying and peculiar powers, elected on a classified suffrage including women. During the year 1902 there was considerable discussion in official circles of the proposal to divide Algeria into a northern (civil) and a southern (military) division, allowing the latter practical autonomy. During June a punitive expedition was undertaken against the Tuaregs in southern Algeria, whose depredations had been causing considerable loss to merchants and traders.

ALLMERS, Hermann Ludwig, a Frisian poet and well-known figure in the "marshland," died March 9, 1902, at Rechtenfleth, on the lower Weser, where he was born February 11, 1821. His artistic inclinations led him to abandon the approved farming life of the region, and at an early age he left home to study in Berlin, Munich, and Nuremberg, and to travel later in Switzerland and Italy, as well as in Germany. On his return to Rechtenfleth the fostering of local art and history became his chief care, and his ancient homestead gained renown for the patriarchal hospitality there dispensed. His *Marschenbuch* (1858) depicts his native region. Others of his works are: *Dichtungen* (1860); *Römische Schlendertage* (1869); *Electra*, a drama (1872); *Dichtungen zu von Dörnbergs kulturgeschichtlichen Bildern aus dem Nordsee-Marschen* (1882); and *Fromm und Frei*, religious poems (1889). A complete edition of his works was published in 1891-95.

ALTGELD, John Peter, ex-governor of Illinois, died at Joliet, in that State, March 12, 1902. He was born near Berlin, Germany, December 30, 1847, and when three years of age was brought by his parents to the United States. After a childhood spent on a farm near Mansfield, Ohio, with but meagre education, he enlisted as a volunteer in the Union Army, in 1864. At the close of the war he obtained enough education to secure him a teacher's certificate, after which he removed first to St. Louis, and then to Savannah, Mo., where he taught school and studied law at the same time, being admitted to the bar of the State in 1870. In 1874 he became the prosecuting attorney for Andrew County, Mo., and in 1875 removed to Chicago. There he worked obscurely as a lawyer for nine years before his name was first brought out in a political nomination. In 1884 he was the Democratic candidate for Congress in the Fourth Illinois district, but was unsuccessful. Two years later he was elected a justice of the Cook County Superior Court. In 1890 he became chief justice of that court, and in 1892 left the bench. In the meantime the radical sec-

tion of the Democratic party in Chicago had fixed upon him as a promising leader. His advocacy of their views brought him the Democratic nomination for the governorship of Illinois, to which office he was triumphantly elected in 1892. His term as governor was one of the most notable in the history of Illinois, owing to the attention attracted by the application of his doctrinaire principles. During the Chicago railroad strike of 1894, the holding up of trains by the strikers interfered with transmission of the mails, and he refused tacitly to suppress the mob. President Cleveland's decision to send federal troops into Illinois to prevent stoppage of the mails evoked from Governor Altgeld a long and elaborate protest, which, however, was disregarded. The pardon of three condemned anarchists, who were undergoing sentences for their connection with the murder of policemen caused by the bomb-throwing in Haymarket Square, Chicago, on May 4, 1886, raised a storm of indignation against Altgeld throughout the country. To this the reply was that the pardon was granted exclusively on legal and technical grounds. He held that the pardoned men had not been justly convicted. At the convention which nominated William Jennings Bryan for the Presidency in 1896, he was able substantially to influence the character of the party platform, and the planks denouncing judicial injunction, interference with State rights, and advocating the free coinage of silver were in large part due to his activity. In 1896 he was again a candidate for governor, but was defeated by John R. Tanner, the Republican candidate, by a plurality of more than 100,000. Three years afterward he sought election as mayor of Chicago on an independent ticket, but was defeated by Carter Harrison. The later estimate of Altgeld, while it denounces him as governor, yet recognizes the honesty and marked ability of the man, as well as the moral earnestness which accompanied his political idealism.

ALUMINUM. See MINERAL PRODUCTION.

ALVES, FRANCISCO DE PAULA RODRIGUEZ, was elected president of Brazil, in March, 1902, as successor to President Campos Salles, and was inaugurated on November 15, the anniversary of the proclamation of the country's independence. Dr. Alves is a lawyer by profession as well as a capable financier, and at the time of his election was governor of the state of Sao Paulo. He is said to be a safe and conservative republican, of excellent administrative ability, and has for several years been prominent in politics and recognized as a probable president. His election is said to have strengthened the position of Brazil in European financial circles. See BRAZIL (paragraphs on History.)

AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE. See POLITICAL AND SOCIAL SCIENCE, AMERICAN ACADEMY OF.

AMERICAN BOARD OF COMMISSIONERS FOR FOREIGN MISSIONS, the oldest foreign missionary society in the United States, founded 1810 and incorporated two years later. Its first missionaries, to India, were sent out in 1812, and since that date, the board has commissioned 2384 persons. There are now 20 missions, including 101 stations and 1301 out-stations, in Africa, Turkey, and Bulgaria, India and Ceylon, China, Japan, Hawaii, Micronesian Islands, Mexico, Spain, Austria, and the Philippines. During 1902 37 persons were added to the missionary force; 19 new churches were established; and the board entered the Philippines, where, probably, the work will be centralized in Mindanao. The churches, under the auspices of the American Board number 524, with 55,645 members, an increase of 5609 during the year; there are 1266 educational institutions of various grades, having 60,964 pupils, 167 being students for the ministry. The 873 Sunday-schools are attended by 60,321 scholars. The missionary force includes 4130 workers—549 missionaries from the United States and 3581 native laborers. Native contributions, so far as reported, aggregated $167,512. The American Board is supported by voluntary contributions of churches and individuals and by legacies; it began the fiscal year 1902 without debt, and its total receipts were $845,-106. Through the state department $57,933 was received, this sum being 25 per cent. of the total award made to the board for property losses during the Boxer outbreak of 1900 in China. Miss Ellen M. Stone, whose capture by brigands in Macedonia, September 3, 1901, excited much interest, was released on February 23, 1902, on payment of a ransom of $68,200, contributed by friends in America, the amount originally demanded having been $110,000. The hostile criticism aroused by Miss Stone's action in publishing the story of her experiences and in entering the lecture field was met by the statement that she hoped to devote the money received to reimbursement of those who assisted in raising her ransom, and to missionary work. In Hawaii, the missions, though still aided by the board, will probably be soon transferred to the care of the Hawaiian Evangelical Association, which in 1902 assumed a part of the expense. It was voted at the annual meeting of the board to allow the Prudential Committee to transfer the Micronesian Mission, excepting Guam, where a new station has been successfully opened, to the London Missionary Society, which possesses

a missionary vessel, or to a German society, since the islands belong to Germany. The ninety-third annual meeting of the American Board, held October 14-17 at Oberlin, Ohio., was signalized by the laying of the corner-stone of a memorial arch to the eighteen missionaries who lost their lives in China in 1900. Several of these missionaries were educated at Oberlin College. One of the interesting features of the session was an account of the deputation that visited the missionary fields in India during 1901. President, Samuel B. Capen, LL.D.; district secretaries, Rev. Charles C. Creegan, D.D., Fourth Avenue and Twenty-second Street, New York City, and Rev. A. N. Hitchcock, Ph.D., 53 La Salle Street, Chicago. Headquarters, Congregational House, Boston, Mass.

AMERICAN ECONOMIC ASSOCIATION. See ECONOMIC ASSOCIATION, AMERICAN.

AMERICAN FEDERATION OF LABOR. See FEDERATION OF LABOR, AMERICAN.

AMERICAN LIBRARY ASSOCIATION. See LIBRARY ASSOCIATION, AMERICAN.

AMERICAN MISSIONARY ASSOCIATION. See MISSIONARY ASSOCIATION, AMERICAN.

AMERICAN SUNDAY SCHOOL UNION. See SUNDAY SCHOOL UNION, AMERICAN.

AMHERST COLLEGE, Amherst, Mass., founded 1821. The attendance during 1901-02 was 404, under a faculty of 35 instructors. The income for the year was increased to $109,000, during which period gifts to the amount of $100,000 were received. The college now owns property to the value of $2,800,000. Plans were completed in 1902 for the erection of an astronomical observatory, costing $50,000. Students may complete the course in three years by having two term credits at entrance and taking six courses a year, and in three years and a half by taking six courses a year after the Freshman year. President, George Harris, D.D.

ANÆSTHESIA. Investigations into this subject during 1902 were chiefly in the direction of improving the technique and perfecting the use of spinal anæsthesia. This method, suggested in 1885 by Dr. J. L. Corning, of New York, has only recently been generally adopted by the medical profession, in cases in which on account of cardiac or pulmonary disease general anæsthesia is contra-indicated. Medullary narcosis is obtained by injecting the anæsthetizing substances into the spinal canal between the second and third or the fourth and fifth lumbar vertebræ. More or less complete anæsthesia is thus secured in the lower extremities and lower portion of the trunk, and obstetric, gynecological, and other operations are thus made possible without loss of consciousness on the part of the patient. In place of cocaine, which was originally used, eucaine and tropa-cocaine have lately been employed, with the object of avoiding certain disagreeable manifestations of the former drug. Friedrich Neugebauer, of Vienna, who has used tropa-cocaine in a large number of operations upon the lower portions of the body, reports favorably on its action. The longest operation lasted one and a quarter hours, and the drug had to be repeatedly injected. That this procedure is not without danger is pointed out by different observers, who mention sudden death, atttacks resembling apoplexy, syncope, profound weakness, severe vomiting, and headache, as results of the operation, independent of the drug used. For new local anæsthetics, see the following article and NERVOCIDINE.

ANÆSTHESIN (Ritsert's) is the para-amido benzoic acid ethylester. It is a white, odorless, and almost tasteless powder, and causes, when applied to the skin, a transitory burning sensation. While the substance is a local anæsthetic, it is not intended to be used like cocaine, since its anæsthetic properties are slighter; but when it is applied to wounds or raw surfaces, it diminishes the pain, and, according to Speiss, promotes rapid healing. Its main usefulness, however, is for irritative affections of the mucous membranes, and accordingly it is of value in whooping cough and particularly in coryza. Von Noorden has given it for gastric hyperæsthesia, angina, dysphagia (difficulty in swallowing), laryngeal hyperæsthesia, painful hemorrhoids, irritation of the bladder, and pruritus. Leg ulcers also are benefited by it.

ANAM, or ANNAM, a French protectorate on the China Sea, extending from Tonquin on the north to Cambodia and Cochin-China on the south, forming a part of the French colony of Indo-China. The area is about 52,100 square miles, and the estimated population (1898) 6,394,250. The capital is Hué, with a population of 50,000. The administration of internal affairs, nominally in the hands of the native king (Than Thaï) and his officials, is in reality managed by the French resident. The customs and finances are in charge of French officials. The local budget in 1901 balanced at 2,081,416 piastres, and the expenditure of France on Anam and Tonquin combined, amounted (budget of 1901) to 1,084,913 francs. (The franc is worth 19.3

cents and the piastre about 2.4 francs.) The principal products are rice, maize, spices, tobacco, sugar, bamboo, and coffee. There are native manufactures of raw silk, coarse crêpe, and earthenware, and valuable deposits of coal, iron, copper, zinc, and gold, still very little developed. The imports in 1899 were valued at 4,173,567 francs, and the exports at 6,567,491 francs. Since that date the customs department has been combined with that of Cochin-China (*q.v.*). A railroad, 65 miles in length, from Hué to the seaport of Turan, is projected. See INDO-CHINA.

ANARCHY. See UNITED STATES (paragraph Anarchy).

ANDRADE, JOSE, a prominent Venezuelan diplomat, died in New York City, March 20, 1902. He was born in the state of Losandes, Venezuela, in 1838, and some years after entering public life became speaker of the Venezuelan Congress. From 1893 to 1899 he was minister to the United States, representing his country at the time of the Venezuelan boundary dispute in 1895. He accompanied President Harrison to England and assisted him in conducting the negotiations which ultimately secured a settlement of the difficulty by arbitration. Señor Andrade was at different times the representative of his country at Paris, Madrid, Rome, and Berlin.

ANDREW AND PHILIP, BROTHERHOOD OF, established in 1888 for "the spread of the kingdom of Christ among men," is an interdenominational order, having members in some 20 denominations. The brotherhood is found in 35 States, where its enrollment includes 550 chapters, with a membership of 15,000. It is officially represented by the *Brotherhood Star,* published monthly in New York City. President, Rev. Rufus W. Miller, D.D.; general secretary, Rev. J. G. Hamner, Jr., 189 Garside Street, Newark, N. J.

ANDREWS, CHARLES BARTLETT, former governor of Connecticut, died September 12, 1902, at Litchfield, in that State. He was born November 4, 1834, at Sunderland, Mass., graduated at Amherst College in 1858, and received the degree of LL.D. from Amherst, Wesleyan, and Yale. In 1863 he settled in Litchfield and became active in politics as a Republican. He served in the State senate in 1868 and 1869, in the house in 1878, and was governor from 1879 to 1881. He was chief justice of the supreme court of Connecticut from 1889 until he resigned on account of failing health in 1901. His eminence as a jurist and the esteem in which he was held were attested by the constitutional convention, held in Connecticut, January, 1902, in choosing him unanimously for presiding officer.

ANEURISM. A new treatment has been proposed and carried out with success in cases of aneurisms of the large arteries, particularly of the thoracic and abdominal aorta, that are not amenable to operation. These huge blood tumors have hitherto been treated by the introduction of foreign bodies such as wires and needles, in the hope of promoting clot formation and gradual solidification of the tumor with, however, but indifferent results. Recently advantage has been taken of the hemostatic properties of gelatin in the treatment of this condition. This substance is dissolved in an artificial serum and injected into the loose tissue of the thigh at intervals of two or more days. After from three to twelve injections are given, over a period of one or two months, the aneurism diminishes in size and becomes hard, while pain, discomfort, and inability to make any exertion disappear. Cases of complete cure by this method have been reported by K. Barth, of Germany, Surgeon-General Dusolier, of France, and others. The operation is called after Lancereaux, who first suggested it.

ANGLICAN CHURCH, or the Anglo-Catholic Church, a term applied in particular to the Church of England, but, in a wider sense, including also the churches derived from the established church of England. See ENGLAND, CHURCH OF; IRELAND, CHURCH OF; and PROTESTANT EPISCOPAL CHURCH.

ANGOLA, or PORTUGUESE WEST AFRICA, a dependency of Portugal on the Atlantic between the Congo Free State and German Southwest Africa, has an estimated area of 484,800 square miles and an estimated population of 4,119,000. The seat of government is St. Paul de Loanda, where the administration is carried on by a governor and his subordinate appointed by the crown. The estimated revenue and expenditure for the fiscal year 1901-02 was 1,844,075 milreis and 1,994,072 milreis respectively; for 1902-03, 1,743,413 and 2,026,212 respectively. The value of the gold milreis and the face value of the paper milreis are $1.08. The most important product is rubber, but production is impeded by lack of internal communications. In 1899 imports and exports in milreis amounted to 6,314,846 and 7,035,414 respectively; in 1900, 7,267,239 and 5,369,818 respectively. The imports, principally textiles, are largely of British and German manufacture; the exports, chiefly rubber and coffee, are in great part sent to Portugal. Economic conditions are unfavorable on account, to a considerable extent, of the customs tariff favoring Portuguese trade. The Ambaca Railway, which is in operation from St. Paul de Loanda to the Lucalla River, 225 miles, will be extended, it is

hoped, to Malange, about 124 miles farther. A line about 20 miles long connects Benguella with Katumbella, and a project has been approved for building a railway from Benguella to a point in the interior about 500 miles distant. In the summer of 1902 the Portuguese had considerable difficulty in curbing several native revolts.

ANTARCTIC EXPLORATION. Excellent progress was made by the three scientific expeditions that worked in the Antarctic regions during 1902; and in addition a fourth expedition, also for scientific purposes, started to the far south in the summer of that year. The investigation of magnetic problems is, of course, the main object of all these enterprises, and all the expeditions are thoroughly equipped with apparatus to this end. They are also provided with equipment for other scientific observations, but in this matter there has been some specializing among the various parties. The Swedes, for example, were fitted to do specialized work in geology, and the new Scottish expedition, which meant to remain at sea, was provided with a fine set of apparatus for meteorological and oceanographic investigation. Magnetic stations have been established all around the world. The series of stations consisting of the Bristol observatory in Victoria Land, the Argentine station in Staten Island, and the German station in Kerguelen has been supplemented by a second German station at Samoa. The observations in all these stations will be continued until March 1, 1903.

The National Antarctic Expedition.—At the end of 1902 nothing had been heard of the British ship *Discovery* since she left Port Chalmers, New Zealand, for Victoria Land, December 24, 1901; but during 1902 reports of defects in her construction contained both in letters from members of the advance party who accompanied her to the far south, and in reports from members of the Royal Geographical Society who left the ship at New Zealand, were published in various periodicals. According to these reports the *Discovery* not only leaked badly but also rolled heavily in the slightest seaway. Meanwhile, in 1901-02 the Royal Geographical Society collected £23,000 for a relief expedition. The ship purchased was the whaler *Morning* of Tonsberg, Norway. The vessel displaces 450 tons, is 140 feet long by 31½ feet beam, and draws about 19 feet of water. The commander of the expedition was Captain William Colbeck of the Royal Naval Reserve. He was captain of the *Montebello*, a Wilson line steamer, and was a member of the *Southern Cross* expedition under Mr. Borchgrevinck in 1900. The other officers of the *Morning* were Rupert England, E. K. Y. Evans, Gerald S. Doorly, George A. Mulock; J. S. Morrison was engineer and George Adams Davidson was surgeon. The *Morning* had a crew of eight petty officers, nine seamen, and three firemen. The relief party set sail July 9, 1902, for Lyttleton, New Zealand, to refit and take in supplies. It arrived in that port November 16. Captain Scott of the *Discovery* had planned to leave records in zinc cylinders at Cape Adare, Possession Island, Cushman Island, Wood Bay, Franklin Island, Cape Crozier, and at the spot in the ice barrier at which Borchgrevinck landed in 1900, and from which he pushed across the ice to the farthest south (78° 50′). The *Morning* was instructed to visit all these places. Should the *Discovery* be found, Captain Colbeck was to work under the orders of Captain Scott until the two vessels shall return to Lyttleton, where they were expected in the spring of 1903. Should the *Morning* not meet the *Discovery* the relief party is instructed to lay down depots of supplies at Cape Adare, at Wood Bay, and at Cape Crozier, before returning to New Zealand. If no trace of the *Discovery* shall be found the assumption is that she has passed beyond the great ice barrier to the eastward of the 164th meridian, and the *Morning* is instructed not to search for her.

The German Antarctic Expedition under Dr. Erik von Drygalski, which left Kiel, August 11, 1901, on the *Gauss*, and arrived at Cape Town November 23, was detained there longer than was anticipated. The ship was somewhat foul and leaked badly; she was therefore recaulked. The ventilating arrangements had to be amplified, and laboratory and other breakable articles were replenished. On October 12, 1901, a supply ship, the steamer *Tanglin*, left Sydney for Kerguelen carrying coal and supplies for the *Gauss*, as well as for the Kerguelen party, and the Siberian dogs, a private gift to the expedition. Two of the scientific members of the expedition, Herr J. J. Enzensprenger and Dr. Luyken, were aboard the *Tanglin*. On November 9, 1901, after a hard trip, Kerguelen was sighted. Beri-beri broke out among the crew, which was composed mostly of Chinese; two of them died, and others were more or less affected. The crew then mutinied and the captain and the scientific staff had to do the work of landing supplies and building houses. It was also found that the theodolite and other magnetic instruments had been left behind, so no observations could be taken before the arrival of the *Gauss* with instruments. The *Gauss*, meanwhile, had left Cape Town December 9, and reached Kerguelen January 2, 1902. In spite of bad weather she had taken thirteen soundings in this region where no soundings had before been made. Instead of finding the *Tanglin* at Three Island Harbor in Royal Sound, as had been agreed, Dr. von Drygalski found a letter direct-

ing him to the station that had been established in Observatory Bay near the position occupied by the English transit of Venus expedition. There the party landed by the *Tanglin* was found in poor quarters. The vessel had already gone, leaving the coal and supplies on the beach. When the *Gauss* arrived at Kerguelen, she was again leaking so badly that the sound of the water slopping about under the plates of the engine-room floor could be plainly heard; this leak was repaired, however, and on January 31, 1902, the *Gauss* sailed for the far south leaving a party of five at the Kerguelen Station, consisting of Mr. J. J. Enzensprenger, Dr. Luyken, Dr. Werth (the biologist), and two sailors. They were to remain there until March 20, 1903, for the purpose of carrying on meteorological and magnetic observations in coöperation with the stations at Staten Island, Samoa, Victoria Land, etc..

The *Gauss* was provided with food to last until 1904. She had 400 tons of coal aboard. The condition of the ship was satisfactory to the leader, and the dogs were in good condition, only three having died on the way to Kerguelen. The first destination of the party was Termination Island, seen by Wilkes in 1840, which the *Challenger* party failed to find, however, in 1874. The expedition will then follow the ice barrier westward until it finds open sea and is able to penetrate to the south. The leader will attempt to discover whether there is any connection between Victoria Land, Kemp, and Enderby Lands. If there is no connection he expects to emerge in the South Atlantic. After the sailing of the *Gauss* the plans of the expedition were enlarged. It was then estimated that the expedition would cost £75,000 instead of £60,000 as was first planned. These figures do not include the work of the Kerguelen Station. Complete official reports of the work of this station to April 2, 1902, as well as the voyage of the *Gauss* from Kiel to Cape Town and thence to Kerguelen, were published in the *Veröffentlichungen des Instituts für Meeres Kunde und des geographischen Instituts*, Berlin.

The Swedish Expedition.—After leaving Buenos Ayres on December 20, 1901, Mr. Otto Nordenskjöld's party on the *Antarctic* sailed for the Falkland Islands. They arrived at Port Stanley on December 31 and thence went to the Argentine Observatory on Staten Island for the purpose of comparing instruments. They arrived January 6, 1902, but were unable to make comparisons, as they found the observatory uncompleted. The first Antarctic land sighted (January 11) by the expedition was King George Island of the Shetland Group, and the party made their first far southern landing at Harmony Cave, Nelson Island. The *Antarctic* sailing westward, proceeded to the mainland and ascertained that the coasts of Louis Philippe Land and Graham Land are connected. The previous supposition had been that Louis Philippe Land was an island. On February 12, 1902, the supplies for the winter party were unloaded at Cape Seymour, on the east side of Graham Land, Admiralty Inlet, near Great Snow Hill Glacier. The wintering party comprised Dr. Nordenskjöld; Dr. G. Bodman, meteorologist and magnetician; Lieutenant Sobral, who joined the *Antarctic* at Buenos Ayres, assistant magnetician; Dr. E. Ekeläf, physician and biologist; and two sailors. Sledge journeys were to be made during the fall and spring as far south as possible. The *Antarctic*, under Mr. T. G. Andersson, the geologist, as acting scientific leader, left Cape Seymour February 21, 1902, for the Falkland Islands, and reached Port Stanley, March 26. The wintering party was to be called for about January 1, 1903. Dr. Nordenskjöld had made plans for a winter's trip by the *Antarctic* party to South Georgia for hydrographical and zoological work. For this purpose the *Antarctic* left the Falklands April 11, and arrived at Cumberland Bay, South Georgia, on the 22d. Soundings were taken, the last one showing a deep sea between Shay Rocks and South Georgia and no connecting marine ridge. On May 1 Mr. T. G. Andersson, Mr. Dure, Mr. Scotsberg, and one of the crew landed to investigate the country while the *Antarctic* made a two weeks' cruise across to Possession Bay and the Bay of Isles. On May 12 the vessel returned and remained in Cumberland Bay until June 14, making daily trips to sound and dredge the bay. During the expedition's stay in Cumberland Bay a surrounding area of 300 square miles was surveyed and mapped. On June 15 the *Antarctic* sailed for the Falklands and arrived July 4. It was Dr. Nordenskjöld's intention to remain a second winter in the south.

The Scottish Expedition.—The fourth important Antarctic expedition in the field in 1902, the Scottish National Antarctic Expedition, also called the Bruce-Robertson Expedition, under the leadership of Dr. W. C. Bruce, Captain Robertson being in command of the vessel, sailed in the steamer *Scotia* from Troon, Norway, November 2, 1902. The expedition reached Funchal, Madeira, November 20, where the coal given the expedition by the Union Castle Line was taken aboard; it then left for the Falkland Islands, November 23, where more coal and supplies were to be shipped. From Port Stanley the *Scotia* was to sail eastward 1000 miles, investigate the Sandwich Islands, and then turn southward. The only other explorer who has visited this Antarctic region is Capt. James Weddell, also a Scotchman, who

sailed from Leith in 1823 and in the following year, in an open sea, made a higher southing than any one before the day of Ross, and saw open water before him. Great care will be used in the investigation of the region in 68° 34′ S., 12° 49′ W., where Ross got the sounding 4000 fathoms and no bottom. The Scotchmen will also ascertain whether the "deep" reported by the *Valdivia* between the Bouvet Islands and Enderby Land extends far toward the westward. The ship used for the expedition, the *Scotia*, was formerly the whaler *Hecla*. She was thoroughly overhauled by the Ailsa Shipbuilding Company at Troon under the supervision of Mr. G. L. Watson. The *Scotia* is a barque-rigged, auxiliary screw steamer, of about 400 tons, 140 feet long by 29 feet beam, drawing 15 feet of water. She was equipped with new engines and boiler and it was expected that her speed would be seven knots an hour. A special deck-house amidships was provided for scientific work, the after part of which forms the galley. A large laboratory designed for zoological work lies below the deck-house, and a very complete dark room adjoins it. While scientific researches of all kinds are to be carried on, the party is especially equipped for oceanographic and meteorological work. The vessel carries two large drums, each containing 6000 fathoms of cable, for trapping and trawling at great depths. The cable is led up on deck to a specially constructed 40-horse-power steam winch. There is also a specially constructed motor engine for reeling in the large kites, which carry meterological instruments to great heights in the air. Besides this, there are nets of all kinds for taking plant and animal life from the sea, as well as apparatus for procuring seals and whales. Hourly meteorological observations will be taken during the entire time.

The master of the vessel is Capt. Thomas Robertson, of Peterhead, who has already been in the Antarctic regions and has had twenty years' experience in the Arctic. The scientific staff consists of six men. The leader, Mr. W. S. Bruce and Mr. Wilton, will carry on the zoological work; Mr. R. N. Rudmore-Brown is botanist; Mr. R. C. Mossmann, meteorologist and magnetist; Dr. Y. H. H. Pirie, geologist and medical officer; a taxidermist and artist also accompany the expedition. The *Scotia* sailed with thirty-seven people all told, aboard. Dispatches received from Madeira said that she had proved herself a good sea boat and economical of coal, but that she rolled heavily. Mr. Bruce does not intend to allow the *Scotia* to be frozen in the ice if it can be avoided, for in his opinion his purposes can be better accomplished if the ship sails free. There will be no landing party, as not sufficient funds were contributed. The length of time that the Bruce-Robertson party remain in the far south will depend entirely on what provision the Scottish Geographical Society may be able to make for it.

Rumors of Expeditions.—Mr. C. E. Borchgrevink took out citizenship papers in the United States in 1902, and according to rumor was to lead an expedition under the patronage of various authorities in the Smithsonian Institution, to explore the Antarctic regions. It was said that Capt. Adrien de Gerlache, who headed the expedition of the *Belgica* in 1897-99, was planning to lead another expedition into the Antarctic regions.

ANTHROPOLOGY IN AMERICA. The year 1902 witnessed a steady increase of interest in various departments of anthropologic science, especially in the United States. This interest was manifested partly in growing activity among institutions devoted to the science. The most noteworthy movement was the founding of the American Anthropological Association as a national organization designed to promote investigation and publication, and by these means, as well as by meetings, to bring the anthropologists of the country and the world into closer union. The initial steps were taken at Chicago during the Convocation Week of 1901-02; the association was formally founded at Pittsburg on June 30, 1902; and the first regular meeting was held in Washington during the Convocation Week of 1902-03. The timeliness of the movement and the recognized need for such an organization are sufficiently indicated by the fact that all the leading anthropologists of the country were practically united in its support. The officers chosen comprise W J McGee, of Washington, president; F. W. Putnam, of Cambridge, Franz Boaz, of New York, and W. H. Holmes and J. W. Powell, of Washington, vice-presidents; George A. Dorsey, of Chicago, secretary; Roland B. Dixon, of Cambridge, treasurer; and F. W. Hodge, of Washington, editor. At the Washington meeting an arrangement was effected whereby the publication of the *American Anthropologist*, the leading journal of its class in the western hemisphere and one of the foremost in the world, was turned over to the association. Other voluntary organizations have continued in vigorous activity both in this country and abroad. The Anthropological Society of Washington held bi-weekly meetings during 1902, except in the summer months, closing the year by the election of Miss Alice Cunningham Fletcher as president, Joseph D. McGuire and Walter Hough as secretaries, and P. B. Pierce as treasurer, with a strong corps of vice-presidents. The American Ethnological Society, domiciled in New York, held frequent meetings during the winter

months at which numerous papers and addresses were presented; the officers at the end of the year were Morris K. Jesup, president; General James Grant Wilson and Professor Franz Boas, vice-presidents; Livingston Farrand and M. H. Saville, secretaries, and George H. Pepper, treasurer. The section of anthropology in the American Association for the Advancement of Science held important meetings at Pittsburg June 30-July 3, 1902, and at Washington December 29, 1902, to January 2, 1903; in both meetings the American Folk-Lore Society cooperated, and in the second the American Anthropological Association also; and at them opportunity was given for the presentation and discussion of more than a hundred contributions to the various branches of the science of man. The Pittsburg meeting was held under the chairmanship of Dr. Stewart Culin, of Philadelphia, with Dr. George A. Dorsey as secretary; at the Washington meeting Dr. Dorsey was chairman, and Dr. Roland B. Dixon, of Cambridge, secretary. One of the notable events of 1902 was the session of the International Congress of Americanists held in New York October 20-25, primarily at the instance of the Duc de Loubat and under the special support of Mr. Morris K. Jesup. The committee on arrangements for the meeting included the leading American anthropologists, with Prof. F. W. Putnam as chairman, and Dr. M. H. Saville as secretary. The congress brought representatives from about a score of countries as well as from all sections of the United States; and some eighty communications relating to the anthropology and early history of the western hemisphere were presented and discussed. While Mr. Jesup was president and the Duc de Loubat honorary president of the congress, the international character was emphasized by having vice-presidents from different countries preside at the daily sessions. These vice-presidents were Juan B. Ambrosetti, for Argentina; Alfredo Chavero, for Mexico; Leon Lejeal, for France; Karl von den Steinen, for Germany; Hjalmar Stolpe, for Sweden; and F. W. Putnam, for the United States. Out of compliment to the country of meeting, most of the communications and discussions were in English (though French is the official language of the congress), while Spanish, German, and Swedish were used also, especially in the informal discussions which formed the most attractive, if not the most useful, feature of the congress.

The chief unofficial anthropologic serials in this country remain the *American Anthropologist* (New York), the *American Folk-Lore Journal* (Cambridge), the *American Antiquarian* (Chicago), and the *Proceedings of the American Association for the Advancement of Science* (Washington); but it is a sign of the times that an increasing number of articles prepared by anthropologists are produced in the standard magazines. The leading organizations and publications in which the science is fostered abroad are, as during past years, the Anthropological Institute of Great Britain and Ireland, with its quarterly *Journal* and the excellent journal *Man*; the Berliner Gesellschaft für Anthropologie, Ethnologie, und Urgeschichte, with its two serials, viz., *Verhandlungen*, and *Zeitschrift für Ethnologie;* and the *Société d'Anthropologie de Paris*, with its *Bulletin* and *Mémoires*.

The leading official institution devoted to researches concerning mankind in this country is the Bureau of American Ethnology, which has continued field researches among Indian tribes and concerning related antiquities in a number of States and Territories as well as in portions of Canada and Mexico. Noteworthy expeditions were those of Dr. J. Walter Fewkes, early in 1902 to Porto Rico and in the autumn to the same island and Haiti where interesting aboriginal remains abound and where certain aboriginal customs and institutions have been preserved; also that of Dr. Frank Russell, who in June brought to an end a residence of nearly a year among the Pima Indians of Arizona, in the course of which he gained important information concerning the industries, social organization, and beliefs developed under conditions of extreme aridity. The bureau has continued the publication of annual reports and bulletins, of which several volumes were distributed through the year. It remains unique among official institutions, though scientific men of both the British and German empires have striven for years to have similar work undertaken in their colonies and dependencies. Its nearest analogue was developed during 1902 under the title, Bureau of Non-Christian Tribes in the Philippine Islands; the office being modeled after the American Bureau by the Philippine Commission, and entrusted to the direction of Dr. David P. Barrows, formerly of California. During the year the bureau suffered the great loss, by death, of its founder and director, Major J. W. Powell. The important ethnologic and archæologic researches of the Jesup North Pacific expeditions have been continued vigorously. These expeditions, supported by Mr. Morris K. Jesup in connection with the American Museum of Natural History in New York, and conducted under the general direction of Prof. F. W. Putnam and the more immediate supervision of Professor Franz Boas, were designed primarily to trace evidences of ethnic relation between the peoples of northwestern America and northeastern Asia; but, in addition to throwing much light on the subject of immediate inquiry, they have

yielded abundant data relating to the characteristics of various more primitive tribes. Among the important contributions may be noted the records of observation by Professor Waldemar Bogoras; certain of his observations on ceremonies and traditions are startling, in that they seem to indicate conclusively a migration in relatively early (i. e., pre-Eskimo) time from America to Asia. Although these indications are directly counter to prevailing suppositions, they are in harmony with various other determinations; thus, our most definite knowledge of human migration across Bering Strait is that of the westward passage of a branch of the Eskimo during late prehistoric times; while several migration routes of birds cross the strait from breeding grounds in Alaska to winter feeding grounds stretching southward from Kamchatka. These indications are also in striking accord with certain inferences made during 1902 by Prof. O. F. Cook, of the United States Department of Agriculture, concerning the origin and distribution of cultivated plants, including the banana and perhaps the cocoanut; he finds evidence (not yet conclusive though highly suggestive) that the original home of these plants was in South America, and that they must have come under cultivation there before they were transported across the Pacific, where they were afterward brought under still higher cultivation. Some of the material obtained through the Jesup expeditions is published in the *American Anthropologist*, but the greater part appears in the two serials (*Memoirs* and *Bulletins*) issued by the American Museum of Natural History. Under the guidance of the head of the Department of Anthropology (Dr. George A. Dorsey), the Field Columbian Museum, of Chicago, has recently made important studies of the ceremonial life as well as the sacred objects of several tribes, notably, the Pawnee, Cheyenne, and Arapaho; those in the first named tribe being a continuation of researches previously carried forward by Miss Fletcher with the support of the Bureau of American Ethnology. Dr. Stewart Culin, of the Free Museum attached to the University of Pennsylvania (Philadelphia), also made important researches in connection with strictly museum work; many of his observations relating to games and gaming devices, which play so prominent a rôle in the lives of the more primitive peoples. Among the more notable advances of recent years is the establishment of a department of anthropology in the University of California through the benefactions of Mrs. Phœbe A. Hearst; and especially notable among the events of 1902 in anthropology are some of the results of the work in this department, including that of Dr. A. L. Kroeber and Dr. Roland B. Dixon on the distribution and characteristics of the aboriginal languages of the Pacific region, and that of Dr. Max Uhle on the antiquities of South America. The studies of Kroeber and Dixon throw much light on one of the more interesting problems connected with the development of our aborigines. It has long been known that while some four-fifths of the area of North America north of Mexico was occupied by tribes of only half-a-dozen linguistic stocks, the remaining one-fifth along the Pacific coast was occupied by tribes of fifty or more distinct stocks. Ethnologists were long at a loss to explain the singular persistence of the Pacific coast languages, and, while McGee three years before had detected an important factor growing out of the use of speech as the ostensible basis of social organization in many of the tribes, it remained for the authors named to discover linguistic evidences of actual differentiation of the stocks, presumably due (at least in part) to the abandonment of words connected with deceased individuals of the tribes. Professor Frederick Starr, of the University of Chicago, continued his researches in Mexican anthropology during 1902, and conferred a boon on critical students by the issue of an immense album of aboriginal types found in Mexico; the album being made up of photomechanically reproduced portraits, in full face and section, of carefully selected types, all on the natural scale, i. e., life size. The year witnessed also another notable contribution to the anthropology of the neighboring republic in the two-volume work *Unknown Mexico*, by Dr. Carl Lumholtz. Primarily this is a record of five years' exploration in the less known districts of Mexico, yet it contains one of the fullest and most sympathetic accounts ever written of the social customs and ceremonial observances of primitive peoples. A large body of material for a prospective contribution to knowledge of the aborigines of Mexico was gathered during 1902 by Dr. Ales Hrdlicka in the course of extensive journeyings in which he visited several surviving tribes, collecting anthropometric data as well as photographs and osteologic material.

The recognition of anthropology in the higher institutions of learning continues to make satisfactory progress. Most universities begin with the introduction of special branches, usually those connected with social and economic problems, less commonly with those connected with physical anthropology and hence with biology; but several leading universities now have more or less definitely established departments of general anthropology. Prominent among these are Harvard, Columbia, California, and Chicago, all of which have become centres for active diffusion of the science.

ANTIGUA. See LEEWARD ISLANDS.

ANTIMONY. The mining of antimony ores in the United States received a severe check during 1902 by a tariff decision that placed crude antimony (partially refined sulphide) on the free list. Following this decision the single producer of refined antimony from domestic ores in the United States closed its works, and it is probable that operations will not be resumed so long as the present conditions continue. The supplies of antimony are derived from imports of the metal and from foreign ores that are smelted and refined in this country. See MINERAL PRODUCTION.

ANTITOXIN. Since the benefits of antidiphtheritic antitoxin (the first to be employed) became known, several other serums have been prepared. Among these are serums for dysentery, scarlet fever, snake bite, pneumonia, exophthalmic goitre, typhoid fever, bubonic plague, whooping cough, erysipelas, and streptococcic infections. The value of antidiphtheritic antitoxin in saving life is now universally admitted, and during 1902 much fresh testimony as to its worth was gathered. Thierry and Bertail, of France, report a series of 79 cases of diphtheria treated with the serum, with only 2 deaths; and in Berlin its use resulted in the lowest death rate from this disease ever recorded. Professor Behring's serum is employed in all but one hospital. Prior to its use the number of deaths from diphtheria was from 1300 to 2600 a year, while in 1901 the number was only 469. Antitoxin has also been tried in other diseases. In croupous (lobar) pneumonia reports as to its effects have been conflicting, but on the whole favorable. In whooping cough, it has been tried by I. K. Konarzsherski, of Russia, who found that two or three injections of 1000 units each limited the disease to two weeks' duration, and prevented severe paroxysms of coughing. The antitoxin was found in addition to be a certain prophylactic against infection. See SERUM THERAPY.

ANTIVIVISECTIONISTS. See VIVISECTION.

ANTOKOLSKI, MARK MATVEYEVITCH, a Russian sculptor, died July 9, 1902, at Hamburg, Germany. He was born in 1842, in the ghetto of Vilna of poor parents, and received only meagre education. When a child he evinced wonderful skill in making clay images, and although the Jewish religion does not encourage this form of art he was apprenticed to a marble cutter. At the age of twenty-two he was admitted as a free "listener" to the Academy of Fine Arts in St. Petersburg. He soon produced the original studies including "The Jewish Tailor" and "A Dispute over the Talmud," which won him a gold medal and the means to study in Italy for three years. "Ivan the Terrible" was completed in 1871 and raised him to the rank of an academician. Among his other great pieces may be mentioned "Peter the Great" (1872), "Christ Before the People" (1874), "The Death of Socrates" (1876), "Spinoza" (1882), "Yermak" (1900), and one of his earlier works, "The Inquisition," representing the appearance of an inquisitor among the Spanish Jews observing a secret holiday. He was recognized not only as a national, but as the first of Russian sculptors. Realism was his fundamental principle, and he followed neither school nor master, but was always absolutely original. He suffered much from neglect in Russia, and the anti-Semitic press was very hostile to him, but at his death his genius was fully acknowledged, and all the leading newspapers and societies of St. Petersburg were represented by committees at his funeral.

ARABIA, a peninsula in southwestern Asia, has an area estimated at from 1,000,000 to 1,230,000 square miles, and a population from 4,000,000 to 12,000,000, the lower estimates for inhabitants being probably more nearly correct. Politically the peninsula may be divided in four parts: Turkish territory, comprising the vilayets of Hedjaz and Yemen on the Red Sea, while a strip along the Persian Gulf as far south as Oman is nominally under Ottoman authority; the sultanate of Oman in the southeast, independent but under British influence; Aden (*q.v.*); and the interior, which has not been annexed by any country and is largely unknown.

The estimated area of Hedjaz is about 96,500 square miles and its estimated population about 300,000; of Yemen, 77,000 square miles and 750,000. A railway is under construction from Damascus to Mecca.

The insurrectionary movements in Yemen, headed by Essid Hamid Eddin, continued against the Ottoman authorities in 1902.

The Red Sea Piracies.—Piracy in the Red Sea, which for some time had been of frequent occurrence, led to vigorous action on the part of Italy in the fall of 1902, while Great Britain entered protest against the neglect of the Turkish authorities to suppress this form of outrage. Italy's interest was aroused by a number of piracies in the vicinity of Massawah (Eritrea), and a naval demonstration at Hodeida followed. In the latter part of October three Italian warships, with a number of Turkish troops aboard, appeared off Midi, an island near the Yemen coast, whither the pirates had fled. A number of Italian dhows were attacked by the pirates and the Italian Commander Arnone shelled the island. Finally, on November 11, the Turkish authorities agreed to destroy or to hand over to Arnone

all of the blockaded pirate dhows; to punish those pirates who were Turkish subjects; within two months to deliver at Massawah such Eritrean pirates as Commander Arnone should designate; to suppress piracy in the future; to pay an indemnity of 15,000 francs to the families of two Italian sailors killed at Midi and one of 19,600 francs to Eritreans who had suffered loss from piracy; and to accord the same treatment to Eritrean dhows as to the most-favored foreign vessels. It was asserted that prior to the shelling of Midi the Turkish officials had connived at the crimes of the pirates, who were both robbers and procurers for the slave trade. Perhaps the most important phase of the whole matter was that Italy treated directly with the so-called rulers in Arabia rather than with the imperial authorities at Constantinople.

Koweyt.—During 1902 there was continued interest in the status of Koweyt as an important factor in the general question of the Persian Gulf. Koweyt, a town near the head of the gulf, is the capital of a small autonomous territory under the rule of Sheikh Mubarakh. Though claimed by the Turkish Sultan as a part of his domain, Koweyt is practically, though not technically, under the protection of the British government. In order to aid her in maintaining the political neutrality of the Persian Gulf and her supremacy in the trade of southern Persia, Great Britain has striven to preserve the existing status of Koweyt. Turkey is desirous of exercising administrative authority over the territory in the interest of her own revenue and, as seems probable, in order to make Koweyt a possible terminus for the projected Bagdad railway, which is largely a German enterprise. Russia also, in furthering her Persian policy, wants the port of Koweyt, and in 1902 two Russian consuls, on Russian ships, visited Mubarakh; he, however, seemed to stand firm in his preference for British friendship and protection, which according to British writers alone keeps the shores of the Persian Gulf from lapsing into anarchy. The feud between Mubarakh and Ibn Rashid, the ruler of Nejd (in the interior) continued during 1902. Against the latter also in that year arose Abdul Aziz bin Feysul, a descendant of the old Wahabi ameers, who with about 2000 men captured by strategy the town of El Riad in February. A number of inter-tribal conflicts followed. In November, 1902, it was stated that the success of his Wahabi allies secured Mubarakh's position from invasion by Ibn Rashid, while he had little cause to fear any direct aggression from the Ottoman government so long as British ships remained in the vicinity of Koweyt. The chief danger at this time seemed to be in conspiracies fomented against Mubarakh in the neighboring Turkish territory. An attempted raid was stopped by a British warship in September. Although it is practically certain that this expedition was organized on Turkish territory, the Turkish authorities took no measures for punishing the offenders; indeed, the obstructive attitude of the vali of Basra seemed due to instructions from the Porte.

Oman.—In 1902 the ruler of Oman was the Sultan Seyyid Feysal bin Turki, who succeeded his father in 1888. A British political agent resides at Muscat, the capital. The annual revenue amounts to about 250,000 dollars. (The dollar is about equal to the Mexican dollar.) In the fiscal year 1901 the imports, chiefly rice and other provisions, arms and ammunition, and cotton goods, were valued at 3,365,883 dollars, and the exports, largely dates and mother-o'-pearl, 1,359,893 dollars. The trade is principally with India and Great Britain.

ARBITRATION, INTERNATIONAL. The year 1902 was a notable one in the history of international arbitration. This was manifested in the more general acceptance of the theory that arbitration is a practical means of settling international disputes; in the recognition of the principle of arbitration by the incorporation of clauses in several treaties negotiated, providing for its use in cases of dispute; in the large number of disputes decided by, or referred to, arbitration during the year; and, perhaps of the greatest importance of all, the utilization by some of the great world powers of the International Court of Arbitration at The Hague for the settlement of their difficulties and misunderstandings. It is significant that it was not until two American republics, the United States and Mexico, had set the example that the Old World powers, who have looked on the international court which they themselves helped to create with lack of confidence if not actual distrust, agreed to submit their differences to its decision. No purely European dispute was submitted to the arbitration, either of the Hague tribunal or other arbitrator, but before the end of the year Germany, France, and Great Britain had all recognized the court by agreeing to the submission to it of cases in which they were interested. Aside from this movement toward the utilization of the international tribunal, by far the most interesting development was the movement that found expression in numerous influential societies and organizations favorable to the conclusion of a permanent treaty of arbitration between Great Britain and France. During the year died one of the world's foremost advocates of international arbitration, M. Jean de Bloch (*q.v.*), of Warsaw, Poland.

The Pious Fund Decision.—On September 15, 1902, hearing was begun at The

Hague on the first case to be referred for adjudication to the International Court of Arbitration. The question at issue was that arising between the governments of the United States and the republic of Mexico over what is known as the "Pious Fund of the Californias." The history of the matter in dispute is as follows: The "Pious Fund" was established in the seventeenth century for the support of the Jesuit missions in both Upper and Lower California. When, at the close of the eighteenth century the Pope attempted to suppress the Jesuits, the administration of their estates and the mission fund was taken in hand by the existing Mexican government. After the establishment of the republic in Mexico, the new national government continued in possession, and agreed with the church authorities to pay them interest on the fund at the rate of 6 per cent. annually. As a result of the war between Mexico and the United States the Mexican province of California was divided, Mexico retaining the lower peninsula and the United States securing what is now the present state of California. After the restoration of peace the Mexican government, holding that the annual 6 per cent. interest which it owed should be paid only to the Catholic Church in Lower California, refused to continue payments for the support of such missions and congregations as lay in the region acquired by the United States. The United States government, on behalf of the Roman Catholic Church in northern California, contended that the payments should be continued to the church in that section, irrespective of the fact that the sovereignty of the region had been transferred. No agreement was reached until 1868, when a formal claim for a distribution of the accumulated interest was made by the Catholic diocese of California to the United States-Mexican Mixed Claims Commission, and by them referred to Sir Edward Thornton, British ambassador at Washington, for arbitration. In 1869 he gave his award declaring that the Mexican government was bound in justice and equity to pay to the United States the arrears of twenty-one years' interest upon one-half of the property in question. In accordance with this finding Mexico paid the sum of $904,700 (Mexican), but after that refused to make further payments, denying that the award bound it for the future. The American contention has been that the award rendered the question at issue *res adjudicata* and settled once and for all the justice of their claim to one-half the property originally left to the Jesuits. After years of futile negotiations a protocol was finally signed at Washington by representatives of the two governments on May 22, 1902, by the terms of which the case was submitted to the Hague tribunal. The protocol provided that the arbitrators should first decide whether or not as a consequence of the former decision the claim was governed by the principle of *res adjudicata*. If it was, the contention of the United States was established. If not, the whole matter would have to be dealt with as though no decision had ever been reached in regard to it. The United States named as arbitrators M. de Martens, of St. Petersburg, probably the greatest living authority on international law, and Sir Edward Fry, formerly lord justice of the British Court of Appeal. The choice of Mexico fell upon Dr. Asser, the famous Dutch jurist, and Dr. Savornin Lohman, former minister of justice in the Netherlands. These arbitrators met in September and chose a fifth member in the person of Dr. H. Matzen, president of the Danish Landsthing. Hearing was begun on September 15, the American case being presented by William L. Penfield, solicitor for the United States State Department, and Jackson H. Ralston, the Mexican case by M. de Beernaert, an eminent Belgian international lawyer, and Señor Pardo. The decision announced on October 14, 1902, was unanimously in favor of the United States, the finding of the tribunal being: (1) that the case was governed by the principle of *res adjudicata* in virtue of Sir Edward Thornton's decision; (2) that in conformity with that decision Mexico must pay to the United States the sum of $1,420,682.67 (Mexican currency) to cover the arrears of interest from 1869 to 1902; and (3) that Mexico shall pay to the United States the sum of $43,050.99 (Mexican) annually forever.

Other Cases before the Hague Tribunal.—The appearance of Mexico and the United States before the Hague tribunal seemed to give the nations renewed confidence in this new medium for the settlement of disputes, and it was announced at Paris on October 28, 1902, that Great Britain, Germany, France, and Japan had agreed to refer to the Hague tribunal the treaty clauses relative to perpetual leases under which foreigners are allowed to possess property in Japan. On November 12 it was announced that Germany had assented to the proposal made by the United States and accepted by other nations, to submit to the Hague tribunal the question as to whether the Chinese indemnity shall be paid in gold or silver. Both of these, however, it will be noted, concerned non-European disputes. Just at the end of 1902, what threatened to be the most serious international complication of the year, gave promise of a peaceful settlement, when Italy, Great Britain, and Germany agreed to submit their claims against Venezuela to the Hague court, a proposal to which President Castro of Venezuela consented on December 31. Late in December

a London paper stated that as many as seventeen cases would be submitted to the court in the near future, at least six of which were South American disputes.

American-Russian Sealing Dispute.—The award in the American-Russian sealing dispute was announced at Washington on July 1, 1902. The arbitrator, Dr. Asser, the eminent Dutch authority on international law, gave his decision in favor of the American contention. The United States asked indemnity from Russia for the seizure of five sealing vessels in 1891 and 1892, and an agreement arranging for the submission of the dispute to Dr. Asser was signed at St. Petersburg in 1900. Dr. Asser's award declares that the annual average catch should form the basis on which damages should be assessed, which was the exact contention of the United States. The exact amount of damages due from Russia was left for future determination. The dispute, although decided in accord with the code of the Hague tribunal, was not submitted to that body.

Other Awards, and Arbitration Treaties.—Among other awards of importance during 1902 were those of King Oscar, of Sweden and Norway, in the Samoan damage suits (see SAMOA); the award of a British commission in the Argentine-Chilian boundary dispute (see CHILE). Arbitration treaties were signed or ratified between Argentina and Paraguay, Argentina and Chile, and Bolivia and Peru. Articles providing for the settlement of disputes by arbitration were included in treaties negotiated during the year between the Netherlands and Germany, and between Denmark and the United States.

The Pan-American Conference.—At the Second International Conference of American States, generally spoken of as the "Pan-American Conference," which was held in the City of Mexico from October 22, 1901, to January 22, 1902, action of considerable importance was taken in regard to international arbitration, to which a greater part of the time of the session was given up. Of the twenty-three measures of various sorts passed, one providing for the compulsory arbitration of international disputes, incorporated in the form of an arbitration treaty, was signed by representatives of Argentina, Bolivia, Guatemala, Paraguay, Peru, Salvador, Santo Domingo, and Uruguay. A protocol declaring the adherence of the signatory states to the Hague conventions was signed by Argentina, Bolivia, Colombia, Costa Rica, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Paraguay, Peru, Salvador, Santo Domingo, Uruguay, and the United States. See MEXICO (paragraph Pan-American Conference).

Central American Arbitration.—A convention was signed at Corinto, Nicaragua, on January 20, 1902, by the presidents of Costa Rica, Honduras, Nicaragua, and Salvador, for the maintenance of peace in Central America, and the establishment of a permanent court of arbitration, to which the contracting states bind themselves to submit all difficulties and disputes that may arise between them. See CENTRAL AMERICA.

Lake Mohonk Conference.—The eighth annual conference on international arbitration was held at Lake Mohonk, N. Y., at the end of May, 1902. The conference was the largest in point of numbers thus far held, and the greatest interest was manifested in its sessions. Particularly noteworthy was the large attendance of prominent business men, who participated actively in the sessions, and discussed at length, the ways and means of enlisting commercial, mercantile, and industrial organizations in the movement for international arbitration. John W. Foster, former secretary of state, presided at the conference and delivered an address in which he reviewed the growth of the arbitration idea, and predicted its further development.

ARBITRATION, LABOR. The long continuance of the miners' strike in Pennsylvania in 1902, stopping the production of anthracite coal for some five months and causing widespread fear of a winter coal famine, brought about a renewal of the discussion in the United States as to the advisability, or, more correctly, as to the necessity of devising some method by which employers and employees might be compelled to adjust their differences. Mainly the argument in favor of this was expediential and ethical, and not of a kind recognized in the principles of Anglo-Saxon jurisprudence. It was said that the anthracite industry, like that of transportation, was basically of a *quasi* public nature; it had been built up and was sustained by the public, who bought and used the coal. The stoppage of production, like the holding up of trains or of the mails, affected the dependent public as much as, or more than, it affected either the employees or the capitalists concerned.

In other words, there were not two parties to the strike, but three, and the third party ought to be enabled, in its own interest, to declare a form of settlement binding upon the other two. But as to just what form this settlement should take there seemed to be no substantial agreement. Voluntary arbitration, whether conducted by the representatives of the employers and employees or by disinterested outside arbiters, would be open to the objection that it was likely to break down

precisely when most needed, and compulsory arbitration would seem, among other things, to violate the right of freedom of contract. Assuming, however, that by constitutional amendment or otherwise, the legal difficulty of compulsory arbitration could be overcome, there would still remain the rooted dislike to it of both employers and employees and the practical impossibility of forcing employees to work when they do not so choose, or of making employers hold capital invested against their will. Where great vested interests already obtained, as in the anthracite industry or in the large trunk line railways, no immediate discernible action by capitalists would probably result from a compulsory decree against their interests. Nevertheless fear of a recurring unfavorable decision would operate gradually to withdraw, or at least to prevent, an increase of the capital invested, and this action would be accelerated if the decision should operate to reduce returns below that in other industries. From the point of view of the employees, compulsory arbitration would, in the first place, tend to freeze out the non-union workers; for it would inevitably occur that the labor union leaders would come to represent all the employees and that the non-union workers, as isolated units, would have even less standing than at present with their employers, the latter being subject, as it were, to an arbitration board, before which only two bodies could naturally appear, that is to say, the employers and the organized representatives of the laborers. But a further objection and a much more germane one, especially in extensive strikes, involving great bodies of men, where alone presumably compulsory arbitration would be resorted to, would lie in the lack of hold that any decree would have upon a body so volatile at will as a labor organization. Unless the union were incorporated and were liable to legal dissolution, or suit for damages, or both, it might in case of acute irritation, and undoubtedly would, break with impunity an unfavorable ruling. But as was officially stated on a very opportune occasion by labor leaders, the unions are unanimously opposed to incorporation. The nominal reason given for this was that the judiciary by inheritance and training is prejudiced against labor and favorable to capital. The real reason, however, seems undoubtedly to lie deeper and to consist in the fact that in normal circumstances intimidation and the boycott are necessary to the successful issue of union strikes. But such intimidation and boycott, whether or not ethically justifiable, are unquestionably illegal and would uniformly so be held. Therefore if unions should incorporate they would not only throw away their most effective weapon in labor disputes, but would at the same time be obliged, as they are not at present, to fein acquiescence in the unfavorable arbitration ruling. The alleged but nevertheless doubtful success of the compulsory arbitration law in New Zealand, enacted in 1894, has even been brought forward as an example that the United States should follow. As the United States Industrial Commission, however, point out in their final report in 1902, the effect of such laws in a country of low industrial development can by no means be taken as indicative of their action in a country of highly complex and fully organized industries, running as a usual thing upon a comparatively narrow margin of profits. A further objection to arbitration *ex-cathedra*, whether compulsory throughout or whether both sides agree voluntarily to accept the decision rendered, follows from the ignorance of the arbiters of the subject matter in dispute. Where, as often happens, the questions raised relate to the interpretation and fulfilment of existing agreements or contracts, this ignorance of the industrial conditions affecting the dispute is not usually of moment, since the premises are clearly outlined; but where, as more frequently happens in strikes of considerable magnitude, the questions to be settled relate to future conditions of labor, and require for their determination a thorough understanding of all sides of the business, the arbiters lack the prime qualification of adjudicators. Neither side is likely to have confidence in the equity of any decision rendered; and the side defeated is fairly sure to protest against it. It has been noted, furthermore, as a rule of general application, that the weaker party to a trade dispute—the one that would naturally be picked out as the loser either because of relative weakness or on the merits of its contentions—is, in nearly all cases the only party that demands arbitration. In such an event the hope is relied upon that the arbitration board, out of general good feeling toward all concerned, will "split the difference"; that is to say, will grant part of the demands of the weaker party and effect a compromise greatly to the advantage of that party. A noteworthy example of the demand of this one-sided form of arbitration was that made by Mr. John Mitchell, president of the United Mine Workers of America, in 1902. For under conditions of the dispute, which were that definite and extensive concessions be made to the miners by the operators, the operators might lose and could not win by any decision rendered, and the miners might win and could not lose; hence the strategic plea of one party for the determination of the pending dispute by a body of disinterested men, and the sullen contention of the other party that there was "nothing to arbitrate."

To a certain extent, the result that has attended the establishment of boards of

arbitration in various other States may be taken as indicative of the difficulty of devising any generally acceptable system of *ex-cathedra* arbitration. It is true that some of the boards have been poorly paid, appointed for political reasons, and vested with insufficient powers. Nevertheless their nearly uniform inefficiency is significant. Boards of arbitration have been created in the States of New York, Massachusetts, California, Colorado, Idaho, Illinois, Louisiana, Montana, Minnesota, Ohio, Utah, Wisconsin, New Jersey, Michigan, Connecticut, and Indiana. These boards usually consist of three members: one an employer, one an employee, generally appointed on the recommendations of labor organizations, and the other, a "citizen," i. e., a non-partisan. The board may act on its own motion and it may be invoked by authority of both parties to the dispute. Where both parties agree to submit their differences to the board, the decision is usually made binding. Generally the board has authority to summon witnesses, and if no settlement is reached, to publish a statement of the case fixing the blame for the dispute and indicating a proper basis of adjustment. In six other States—Pennsylvania, Maryland, Iowa, Kansas, Texas, and Missouri—which have no central boards, laws have been enacted authorizing the establishment of either temporary or permanent local and trade boards of arbitration. And in these six latter States, as stated by the Industrial Commission, the law seems to be a dead letter, and "in several of the States, whose laws provide for State boards of arbitration, they have never been actually appointed, while several other States have been almost absolutely inactive." Only in Massachusetts, New York, Illinois, and Indiana, the boards appear to have acted in a number of controversies with more or less success, and even in these States, the work of State boards of arbitration consists in practice, almost entirely, of mediation and conciliation—of uniformly conferring with the parties to disputes and influencing them to an amicable agreement between themselves. Very rarely are laws submitted to formal arbitration. In most cases, moreover, the intervention of the State board takes place on its own initiative without application of the parties, while in nearly all the remaining instances the application comes from one party only. It follows that the board can take steps towards mediation only after a strike or lockout has actually begun. And the Industrial Commission goes on to say that these limitations in the work of the State boards are to a considerable degree inherent, and that they cannot take the place of boards established within the trades themselves, readily acceptable, representing the employers and employees directly familiar with the prevailing conditions. The apparently utter failure of the State boards of arbitration would seem to indicate that the only feasible way of settling labor disputes is along the familiar line of joint conferences by the parties in dispute. An arbitrarily imposed tribunal with power to enforce its decrees would mean the annihilation of individual liberty, the enslavement of laborers, or the socialization of capital. Any of these is equally bad. Professor John B. Clark, of Columbia University, however, favors compulsory arbitration. In an article, "Authoritative Arbitration," in the December (1902) number of the *Political Science Quarterly*, he said: "If the question whether or not arbitration shall be insisted on is to be decided on broad grounds of equity, and if the rights of the public are to be considered, the reasoning which proves that we must have such arbitration is short and conclusive. The people have a right to continuous service. In enforcing this right they must see that justice is done between employers and employed. . . . We must provide every needed safeguard for the interests of employers and employed, but we must no longer allow them to rend society by their quarrels. . . . Wages kept down by the hardest action of competition we shall not tolerate. Wages sustained by crude force we are, within limits, tolerating. As between courts and mobs we are relying on mobs, but this is only because we have not ourselves proved the efficacy of courts. The evidence is in favor of their efficacy and there is little doubt that we shall ultimately have them." See STRIKES.

ARCHÆOLOGICAL INSTITUTE OF AMERICA. The regular annual meeting of the council was held in New York, May 10, 1902, and as usual the two preceding days were occupied with the meetings of the managing committees of the schools at Athens and in Rome. At that time the total membership of the institute was 1052, of which 135 were life members. Two members of the council, Professor James C. Van Benschoten, of Wesleyan University, and Professor J. Henry Thayer, of Harvard University, died in 1902. Two new societies, at Washington, D. C., and in Iowa, were organized, so that there are now twelve of these local subdivisions. The three schools affiliated with the institute in their annual reports show successful years, though the Roman school was seriously hampered by lack of funds, and the Athenian school greatly needed a permanent endowment for the continuance of its work. The School for Oriental Study and Research in Palestine had not yet had time to develop any settled policy, or to attract many students, but its success seemed assured, and it promised to prove of decided value to those who intend to specialize in Old Testament languages and related fields.

The fourth general meeting of the institute for the reading of papers was held during "Convocation Week" at Princeton, N. J., and proved thoroughly successful from every point of view. Thirty-one papers were presented, dealing for the most part with highly specialized topics from many different fields of archæological study. Special mention may be made of Dr. Peters' account of the painted tombs at Marissa visited by him in July, 1902 (see ARCHAEOLOGY, paragraphs on Syria and Palestine) and Mr. Weller's report of his investigations on the Acropolis of Athens, which had enabled him to add much to our knowledge of the great gateway which preceded the present Periclean Propylæa.

The officers of the institute for 1902-03 are as follows: President, Professor John Williams White, of Harvard University; honorary presidents, Professor Charles Eliot Norton, of Harvard University, and Hon. Seth Low, of New York; vice-presidents, Charles P. Bowditch, of Boston; President Daniel C. Gilman, of the Carnegie Institution; Prof. W J McGee, of the Bureau of American Ethnology; Martin A. Ryerson, of Chicago; and Professor Thomas D. Seymour, of Yale University; secretary, Professor Francis W. Kelsey, of the University of Michigan; treasurer, James H. Hyde, of New York; editor-in-chief of the *American Journal of Archæology*, Professor John H. Wright, of Harvard University. The American School at Athens has the following officers: Chairman of the managing committee, Professor James R. Wheeler, of Columbia University; secretary, Professor Horatio M. Reynolds, of Yale University; treasurer, Gardiner M. Lane, of Boston. For the American School in Rome the chairman of the managing committee is Professor Andrew F. West, of Princeton University; the secretary, Professor Samuel B. Platner, of Western Reserve University; and the treasurer, Cornelius C. Cuyler, of New York. The officers of the American School in Palestine are: Chairman of the managing committee, Professor George F. Moore, of Harvard University; acting secretary, Professor Charles C. Torrey, of Yale University.

ARCHÆOLOGY. The year 1902, like its immediate predecessors, was characterized by the active prosecution of exploration and excavation in the east as well as in classic lands. In the latter the work for the most part was on a comparatively small scale, and the results, though often of great interest to archæologists, were not remarkable. An exception is of course found in the discoveries on Crete, so long closed to scientific exploration, where every report brings new evidence of the civilization and power of the rulers of the island more than three thousand years ago. In the east, the undertakings are more striking, as the discoveries are more likely to modify accepted views, and deal with persons and places better known by name. The most important single undertaking is perhaps the German exploration of Babylon, but Egypt still continues to occupy the largest number of excavators, and to yield the most generous returns. The results obtained or made public during 1902 can be most conveniently described in geographical order.

Babylonia and the East.—The chief place is naturally taken by work of the German *Orient-Gesellschaft*, for whom Dr. Koldewey is excavating the mounds that cover the site of ancient Babylon. Near the village of Jumjuma, in a group of mounds called by the Arabs Nischan-el-aswad, the Black Hills, was found a temple of Ninib or Adar, the patron god of the Babylonian physicians. This building, called E-sibatila, the House of the Shepherd of Life, was restored by Nabopolassar, father of Nebuchadnezzar, who deposited in it four copies of an inscription in which he refers to his revolt from Assyria, and ascribes his success to the special favor of Merodach. At El-Kasr the uncovering of the palace of Nebuchadnezzar showed that it consisted of a great number of small courts surrounded by rooms, united with each other and the great courts by corridors and doors. On one side of a large court was the great hall of the palace with three doors on the side of the court and a recess in the opposite wall. The decorations were peculiar in that they represented a row of columns with large volute capitals, though in the whole palace there is not a single occurrence of the column as an architectural member. Of course they were known to the Babylonians of the seventh and sixth centuries B. C., but for some reason they evidently preferred to use doors. Among the most striking results of the excavations are the reliefs in enamelled brick which formed the chief decoration of the walls. A large number of these ornaments including lions and other animals as well as merely decorative patterns had been put together from fragments, and at last a wall of twenty courses has been found with the glazed tiles still in place. The excavations have shown that the great palace was part of a plan for raising the general level of that part of the city as well as the great street of processions which led to the east. The palace was to cover the entire southern part of the city including the superseded palace of the king's father. The last report relates the discovery of the great gate of Ishtar, a strongly fortified post with towers, court and double gates. The walls are still 12 metres high, and covered with animals in relief. Excavations undertaken at Fara some distance to the south of Babylon led to the discovery of a very early

settlement, yielding stone knives and other primitive objects, including a number of tablets with a very ancient form of Babylonian writing. The place was evidently deserted early, as nothing belonging to the later civilization was found. The interest aroused in Germany by these discoveries has been increased by a lecture delivered in the presence of the emperor by Professor Delitzsch on *Babel and Bible*, in which he expressed very radical views as to the influence of Babylonia in the formation of the Hebrew religion. The publication of the lecture excited naturally a sharp controversy and the views expressed were vigorously attacked by the more conservative critics.

The University of Pennsylvania's excavations at Nippur were temporarily suspended, but the director, Dr. Hilprecht, was presented by the sultan with a great part of the tablets from the temple library which will now form part of the university's collection. The decipherment and publication of the thousands of documents here contained will occupy Assyriologists for many years. The gift was made in appreciation of Dr. Hilprecht's services in cataloguing the Babylonian antiquities in the museum at Constantinople.

The French excavations at Susa, conducted by de Morgan, brought to light many relics of the early time when Elamite invaders plundered Babylonia and brought the spoil to their capital. Among the booty was a stêlê which King Hammurabi, a contemporary of Abraham, had erected in Sippora, containing a long code of laws for the government of the Babylonians. They show in general an advanced civilization and well-established legal forms, and furnish many interesting parallels to the Mosaic code; in particular the *lex talionis* is most rigorously enforced. The extensive trade and long journeys of the Babylonian merchant are indicated by the numerous provisions relating to the rights and duties of his wife and heirs in event of his failure to return within a reasonable time. A German version of the code was published by Dr. Winckler, and an English translation has appeared.

Susa has also yielded some interesting relics of the wars between the Persians and Greeks. A bronze astragalos contained a Greek dedication to Apollo in the alphabet of Miletus, and it can scarcely be doubted that it was part of the plunder of the famous sanctuary of Didyma, which Herodotus says was burned by the Persians under King Darius about 494 B. C. To the invasion of Xerxes seems due the presence of a Greek vase of the early fifth century, apparently a product of the time between the battle of Marathon and the capture of Athens, which may well have formed part of the booty of a Persian soldier.

Syria and Palestine.—The Palestine Exploration Fund after a year's delay at length obtained its firman from the Turkish government, and Mr. R. A. Stewart Macalister began work at Tell-ej-Jezari, long ago identified by Clermont Ganneau with the Biblical Gezer. The first campaign showed that the place was inhabited from very early times. Four strata were distinguished, of which the first is neolithic, while the other three belong to the bronze age. The fortifications of the town during these three periods can be definitely fixed, for on each occasion the circuit was extended, though the details of alteration and repairs cannot as yet be stated with certainty. Two places of burial were found. The first seems to have been used by the neolithic population for burning their dead, and the charred bones point to a non-Semitic race. Later the Semites of the bronze age used the cavern for interments. The other sepulchre was an old cistern, containing fifteen bodies and "the finest deposit of bronze weapons yet found in Palestine." Other remains belong to a megalithic structure in which human sacrifices of children seem to have been offered. Thus far the indications of date are confined to some scarabs and impressions belonging to the Middle Empire of Egypt about 2000 B. C.

At Taanach not far from Joppa the Austrians uncovered a Canaanite fortress and place of worship with a number of columns for sacrifice and some images, apparently of about the same period as the remains of Gezer. To a later period belongs a fortress of the type commonly attributed to King Solomon, in which were also idols and other objects connected with religion, including what is described as "an earthenware altar in the form of a throne adorned with cherubim and lions." The detailed account seems to show that the cherubim bear a strong resemblance to sphinxes. Still later this fortress was replaced by another, and finally, about the time of Haroun-al-Rashid, an Arabian castle was built on the hill.

Since August, 1900, a German expedition under the direction of Dr. Puchstein has been at work at Baalbek, where they have concentrated their attention very largely on the great temple of the sun, in whose court a Christian church and a Saracen fortress were later built. The greater part of this structure seems to be due to the Romans. The early centre of the worship was the great rock altar, around which the Romans built up platforms for a series of colonnades and courts. A flight of steps led to a great gateway, beyond which lay an hexagonal court forming an approach to the great court, in which stood the altar, with lustral basins on either side. Around the court was a great colonnade, facing a series of chambers.

Across the western end of the court rose the great temple, the excavation of which has not yet been reported. The so-called Temple of Jupiter has been repaired and secured against immediate danger of collapse, and the Round Temple, and a similar structure on Lebanon have been carefully studied with important results for the internal arrangements of these sanctuaries.

One effect of archæological activity in Palestine has not been wholly desirable. The natives have discovered that the objects found have a commercial value, and as a result a great deal of clandestine excavation, especially of tombs, is carried on. Needless to say, the objects found either find their way to the hands of dealers, who have every reason for concealing their provenience, or, if of no commercial value, are destroyed. At Tell-Sandahannah the excavations of Dr. Bliss have stimulated the natives to unwonted activity, and they have found the ancient necropolis containing many tombs of the Hellenistic period. Two of these were opened last summer just before the arrival of Dr. Hermann Thiersch, of Germany, and Dr. John P. Peters, of New York, who were thus enabled to examine and photograph or copy their decorations and inscriptions. Both tombs consisted of a sort of vestibule from which opened burial chambers, in which the dead were placed in niches or *loculi*. The inscriptions showed that one tomb contained at least six generations. Most interesting were the painted decorations, partly on stucco and partly on the stone itself. Prominent among them was a frieze of animals, in many cases with the names duly inscribed, showing an elephant, hippopotamus, crocodile, lion, lynx, and many others, for some of which the architect was indebted to mythology, while others seem to have been evolved from his inner consciousness.

Egypt.—Among the numerous excavations of which Egypt is now the scene, the first place seems fairly taken by the work of the German *Orient-Gesellschaft* at Abusir. Here, a little south of the Pyramids of Gizeh, are the pyramids and temples of the kings of the Fifth Dynasty. Though much smaller than the huge structures of the preceding kings, they are marked by very elaborate reliefs belonging to the very best period of the early Egyptian art. Moreover these kings were devoted worshippers of the Sun, and each regarded it as his duty to build a new temple to that deity, adorned with a great obelisk. One of these temples, erected by Ne-user-Ra (c. 2500 B. C.), occupied Dr. Bochardt and his assistants from 1898 to 1901. Their investigations resulted not only in the complete recovery of the plan of the sanctuary, in itself a novelty in Egyptian architecture, but in the discovery of an extremely interesting and valuable series of colored reliefs, of which some relate to the founding of the temple, others to the celebration of the thirtieth anniversary of the king's accession, when the great obelisk nearly two hundred feet high was built, and a third series to the seasons of the year and the occupations and scenes, both in human life and in the world of nature appropriate to each. In 1902, work was begun on the excavation of the pyramid and temple for the worship of the same king. The approach which led from the valley to the temple was first cleared, which led through a gate to a court paved with basalt, o either side of which lay storerooms. From this court a door led into another co containing originally sixteen granite columns, made in imitation of the bund. of papyrus, of which fragments were found. Beyond the court was a long and narr room with a niche at one end from which led a narrow passage. The actual shri and the pyramid itself are to form the subject of next season's work. The sm objects found are numerous and of great value for the history of Egyptian art. Around the temple is a mass of graves, partly those of the nobles who wished to be buried near the king, partly from the Middle Empire (about 2100 B. C.) belonging chiefly to priests and others connected with the temple service, and partly to later times. The latter are for the most part those of the poor inhabitants of the village near by. Later yet the Greek settlers used part of the graveyard. They followed the Egyptian burial customs, but used Greek decorations and buried articles of Greek manufacture with their dead. Here was found the most important classical papyrus of the year—a strip containing six columns from the lost *Persians* of Timotheus of Miletus, a poet of the early fourth century B. C., famed for his many musical novelties. More than two-thirds of the writing is well preserved, though the scribe has not been very careful and the text offers many difficulties to the commentator. The poem was a *Nomos* or solo to be sung to musical accompaniment. It deals with the defeat of the Persians at Salamis, and contains a comic element in a Phrygian who begs for mercy in exceedingly broken and incorrect Greek. At the close the poet appeals to Apollo against the Spartans in defense of his musical novelties, which included a cithara with eleven strings. The poem is the only work of the author and of its kind which we possess, and is also said to be the oldest Greek papyrus, belonging to the later fourth century, and probably not much more than fifty years later than the original publication.

For the Egypt Exploration Fund, Mr. Petrie turned his attention from the tombs

of the early kings at Abydos to the ancient town, and especially the great temple of Osiris, which has been hitherto very imperfectly known. The work proceeded systematically, but by the close of the year only the level of the Eighteenth Dynasty had been reached. The earliest structures are now under water till late in the spring, and their exploration promises to be very difficult and expensive. Two large tombs of the Twelfth Dynasty were also found containing huge sarcophagi of red granite; as they seem to have escaped the early plunderers, there is good reason to expect valuable discoveries when they are cleared. In fact the work of the past year was so promising that nine workers (an unusually large number) planned to take part in next season's campaign. The society's archæological survey was continued by copying the scenes in the tomb of Aba, a Theban noble, at Luxor, and later by a very complete reproduction of the decorations in the tomb of Meryra, one of those to the north of Tell el Amarna. These are important, as they belong to the reign of Khuenaten (Amenophis IV.), the "heretic" king, in whose reign Egyptian art shows such unique characteristics.

For the Egyptian Research Account two new workers, Messrs. Caulfield and Christie, made a renewed study of the temple of Sety I. at Abydos; a site chosen so that these novices could have the benefit of the advice of Mr. Petrie. The excavations led to the discovery of the enclosing wall of the sacred precinct with a great pylon on the desert side from which a road led toward the tombs of the early kings. This has led to the belief that the temple was really the chapel to this cemetery, like the shrines in front of other royal tombs, and this view is confirmed by the long list of his predecessors which Sety inscribed on its walls.

At Naga ed Deir Messrs. Reisner and Lythgoe continued their work for the University of California by the careful excavation of a large necropolis containing a continuous series of graves from prehistoric times to the Eleventh Dynasty. At Bet Khallaf and Reqaqnah Mr. Garstan continued his study of early tombs of the Third and Fourth Dynasties with interesting results for the history of the architectural forms and burial customs. Near Thebes Messrs. Newberry and Titus have excavated the palace of Amenophis III. at Malgata, discovering a building not unlike in plan and decoration the celebrated palace of his successor at Tell el Amarna. Unfortunately the walls were very poorly preserved, and the chief artistic results were the painted floors.

For the later period the Græco-Roman branch of the Egyptian Exploration Fund has been represented as usual by Messrs. Grenfell and Hunt, who report a successful search for Ptolemaic papyri, partly at some sites in the Fayum, and partly at Hibeh, a little further south on the east bank of the Nile, where in mummies of the third century B. C. papyrus was frequently found used as a substitute for cloth. The first volume of the Tebtunis papyri has been issued jointly by the University of California and the Fund; it contains very little that is literary, but a very large number of interesting documents throwing much light on economic and social conditions during the later Ptolemaic period. A valuable appendix discusses the ratio of copper to silver during this time, and reaches the conclusion that, in the second century B. C., a copper drachma stood to a silver drachma in a ratio varying from 1 to 375 to 1 to 500; the old ratio had been considered 1 to 120.

Asia Minor.—Dr. Belck has continued his exploration of Cappadocia, visiting little known sites and collecting information as to the Hittite monuments of the region. Especial attention was given to the ancient Comana Cappadocia, hitherto considered a Hittite sacred place, but which proved to have no Hittite monuments, and is believed by the explorer to be a foundation of the Indo-European Cimmerians, dating from about the eighth century B. C. It is, however, on the coast that the greatest activity has been manifested, and at sites which have already been explored; Miletus, where Dr. Wiegand was still at work in 1902 for the Berlin Museum, Pergamum, where the German Archæological Institute, with Professor Dörpfeld as director, has entered upon a thorough exploration of the lower city, and Ephesus, where the Austrians under Dr. Heberdey are still at work.

At Miletus the excavations are beginning to show more satisfactory results than were possible at the outset, when the natural hindrances due to marshy soil and heaps of rubbish had to be overcome. The strong city walls with their towers and gates have been found in many places, and the road lined, as usual near an ancient city, with graves and sepulchral monuments has been traced on its way to the sanctuary of Apollo at Didyma. Within the city there seem to be two important discoveries. At the end of the Roman aqueduct has been found the great fountain on the Agora. It was two stories high, with elaborate architectural decorations and statues, of which many fragments have been found, enabling 14 to be restored in part. It seems likely that at least 18 were originally used. The reservoir was above, and water poured in cascades over the façade into a great basin, and thence overflowed into a smaller basin from which it could be drawn by the people. This is the first example of the great Roman fountains, to which the name *septizonium*

or *nymphæum* is sometimes given. The other discovery is that of a large Agora south of the Bouleuterion. Its length is as yet uncertain, but its breadth is given as 120 m., and it was surrounded by a colonnade 14 m. wide, with a double row of marble columns from which open a series of large rooms, probably shops. The work here seemed likely to be suspended for a time, as the government did not propose an appropriation for 1903, preferring to support at present the more promising work at Pergamum, a site for which, since their excavation of the Great Altar and the Acropolis, the Germans have rightly felt a special responsibility.

For this place we now have a full preliminary report of the work which has been carried on during September, October, and November for three years. Starting at the great south gate in the city wall, which presents some unusual features due to its situation on a somewhat steep ascent, the excavators followed the course of the winding street which led up the hill toward the Acropolis. The street was well paved with large blocks, and beneath the surface were drains and water pipes. It led past an agora or market-place built on a terrace. The street passed along the substructures on the south and east sides, and here were stores in the basement. Entered on the upper level at the northeast was an open square surrounded by a colonnade behind which on the north, west, and probably east, were rooms for shops; Dörpfeld believes that the south side was an open porch for promenading and enjoying the fine view over the valley. On the north and west the buildings were two stories high, and from a rock-cut cistern further up the hill a tunnel brought water to a fountain on the north side. Three large rooms on the west are so well preserved that they have been roofed over and are now used as a local museum. Beyond the market-place the street was lined with buildings, which have not yet been excavated, and finally passed a large fountain, where the waters poured into a basin 21 metres long and 3.15 metres broad, and covered by a heavy roof supported by two rows of columns. Near by was a curious gateway in the form of a quadrant, from which two doors and steps led to higher terraces. These were obviously connected with the gymnasia of the city. The lower terrace seems to have contained the training school of the boys; on the second terrace was a Corinthian temple whose walls had contained many inscriptions; while on a third terrace above was the great gymnasium of the young men, built in Roman times, and already identified by Carl Humann. It is to this quarter that the next campaign is to be directed. Among the numerous inscriptions is one of peculiar interest. It is a copy of the royal ordinance which defined the duties of the Astynomi and of the public in regard to the public ways and places. The law requires the officials to see that the streets are not obstructed, and to enforce the regulations regarding repairs and cleaning. It seems that these charges were assessed upon the abutting property owners. The repair and use of party walls are regulated, and provision made to prevent injury to a neighbor's rights. The commissioners also had charge of the public fountains, and it is expressly forbidden under heavy penalties to use them for washing or for watering cattle. In another inscription a Roman emperor, probably Hadrian, regulates certain disputes which had arisen between the traders and the city bank, which alone had the right of changing money, and fixes a definite commission.

At Ephesus the work has centred on the system of streets in the part of the ancient city near the harbor and the theatre. About the latter very little has been reported, as a complete publication of the whole building is shortly to appear. The systems of streets investigated were late Roman, and satisfactory evidence that they were over the streets of the earlier city was lacking. The chief street, leading from the port to the theatre, is shown by an inscription to have been called the *Arcadiane,* and must have been named in honor of the emperor Arcadius (395-408 A. D.). It was about 11 metres broad, and well paved. On either side were colonnades about 5 metres wide, and back of them doors opened into shops. The testimony of an inscription shows that there were arrangements for lighting it at night. Two streets seem to have run parallel to it, and a third crossed it at right angles. The building which has hitherto figured as the "large gymnasium" is now proved to have been the "Baths of Constantine." It was connected with the Arcadiane by a fine open place, with colonnades on three sides, and three doors opening on the street. Among the lesser objects discovered were some fine remains of Ionic architecture, apparently belonging to an altar, and with them a relief containing the upper part of the Amazon of Polyclitus.

To Asia Minor may also be reckoned the islands immediately adjacent, and on two of them important excavations have been begun, though detailed reports have not yet appeared. At Cos, Dr. Herzog has at last found the celebrated sanctuary of Asclepios, scarcely second to Epidamus as a place of healing. The temple was 30x17 metres, and it is said the architectural remains are sufficient to show all the details; there are, however, no traces of the pediment sculptures. The complete ex-

cavation of the sacred precinct is likely to be a long task. At Samos the Greek Archæological Society has secured permission to excavate the famous temple of Hera, and in the first season's work has satisfactorily determined that the temple was decastyle, and 109 metres long by 54.5 metres broad. It is also said that there were three rows of columns across the ends and two along the sides.

An important publication of the year has been the first part of the *Investigations at Assos, Plans, Drawings, and Photographs* (Cambridge, 1902), made by the American expedition to Assos twenty years ago. Two earlier reports have been issued among the papers of the Archæological Institute of America, but this at last shows in satisfactory form the important results of the first expedition of the institute. The brief text is by Francis H. Bacon, to whom many of the plans and architectural drawings are due. This part includes the agora, stoa, and bouleuterion, while four more parts will contain the account of tombs, baths, theatre, and walls, as well as the lesser objects. With this must be named the final and authoritative account of the long series of excavations at Troy, which closed in 1894. *Troja and Ilion*, by William Dörpfeld, with many collaborators (Athens, 1902), must always remain the official record of this work, though the interpretation of the results will doubtless continue to call forth discussion.

Crete.—The chief excavations on the island have been those carried on by the English Cretan Exploration Fund at Cnossus, by the British School of Athens at Palæokastro, and by the Italians at Phæstos. At the latter place the exploration of the Mycenæan palace has been continued with better results, so far as decorations and smaller finds are concerned. The palace was a large building extending over various terraces, with fine cut stone walls and broad staircases. The plan is naturally somewhat complicated, but shows analogies to the larger buildings at Cnossus. It was built over an earlier building, for beneath the floors were found walls and passages choked with rubbish, but showing through the characteristic pottery that they belonged to the pre-Mycenæan, "Kamarais" or Minoan period. From this palace the Italians turned to the necropolis, which, however, turned out to be chiefly of the later geometric period, though their native superintendent did discover twelve tombs with a fine collection of bronze swords, vases, and other objects belonging to the very end of the Mycenæan period. Still later they turned their attention to another summit of the ridge on which Phæstos lies, near the modern chapel of Hagia Triada, and here came to light another smaller Mycenæan palace, containing two shrines with many votive offerings, five inscribed tablets, many seals, and a very fine steatite vase with decorations in relief, representing a procession with music and dancing, which has been variously interpreted as a triumphant return from war or a harvest home. Some of the rooms of the palace contain well preserved frescoes, representing animal life.

At Palæokastro, Mr. Bosanquet had a site in eastern Crete which for some reason was abandoned after the fall of the Mycenæan power. He was fortunate in discovering a Mycenæan town of some size, and near it a group of better houses, one of which was fully cleared. It was at first only one story high, but later a second story reached by two staircases was added and the lower rooms used in part for storage. Near by a cemetery was excavated, throwing much light on the burial customs of the people, which seem to have differed somewhat from those in vogue on the mainland. The bodies seem to have been disinterred after a time and the bones collected in clay chests, while in one place there was an enclosure surrounded by a wall and divided into compartments, each containing a mass of skulls, bones, and vases, apparently in complete confusion. The vases were of the Kamarais type, so that this seems to represent the pre-Mycenæan custom.

At Cnossus the work of excavating the palace of Minos is still continuing, largely at the expense of Mr. Arthur Evans, as the subscriptions to the Cretan Exploration Fund are far short of what is required. The discovery of staircases and colonnades, which need to be supported or repaired, makes the work one of great difficulty, though the results more than pay for the trouble. This season has added a new series of rooms on the eastern side, but the end is not yet. The palace was provided with an elaborate system of drainage, including sanitary conveniences, with pipes for flushing, and stone shafts leading from upper stories to sewers below the surface. At last a shrine has also been found containing an altar with the sacred horns, between which was a small double axe, and a clay image of a goddess with a dove upon her head. As in the other images of this period, the lower part of the body is a cylinder. More frescoes have been found representing plants, and also a painting representing fish swimming. A whole series of porcelain plaques contain a representation of a town, and though much damaged it is clear that there were houses with two or three stories, and windows containing frames which must have contained some substitute for glass. Ivory figurines of very graceful carving are a new form of Mycenæan art. Many more inscribed tablets have been found, and Mr. Evans is confident that the numerical system is at last intelligible. The Oxford University Press has

had cast a set of types so that the inscriptions may shortly be printed in approximate facsimile.

Greece.—The attention of the Archæological Society and the foreign schools has been largely directed to works outside of Greece proper, and the most important of these undertakings have already been described. The Greek Society is very active in the establishment of local museums and the preservation of the local antiquities. The report (Praktika) published in 1902 shows that in 1901 work was carried forward at eleven different places, though in none on a large scale. The chief excavation now in progress is at the Heræum on Samos, but a very extensive scheme for the restoration of ancient monuments is planned. The repairs on the Parthenon having been completed, the scaffolding has been moved to the Erechtheum, where it is proposed to rebuild the Ionic porch on the north, and replace the half-columns of the west front. These portions of the temple were ruined during the War of Independence, and the material for the most part is now on the ground. New material, steel trusses and iron bolts, are to be used only when absolutely necessary. The principle involved is one already accepted, for a good deal of the present building is due to repairs made in 1844 and 1846, while the little temple of Athena Nike was entirely rebuilt from the material found in a Turkish bastion. The names of the committee who recommended the new work are a guarantee that nothing rash is proposed, and there seems no good reason why the results should not be satisfactory. The Ephor-General Kavvadias has also begun the restoration of the temple of Apollo at Phigalia, where the walls, overthrown by earthquakes, can be easily rebuilt. The society intends likewise to reconstruct the great Lion of Chæronea, which marked the spot where the sacred band of Thebes made their last stand against Philip of Macedon. The monument survived until the last century, but during the War of Independence was blown up by a Greek leader who believed it contained treasure. As the fragments lie almost where they fell, the work of restoration should be easy. Other works which the society has in view are the complete excavation of the great temple enclosure at Athens sacred to Olympian Zeus, and the removal of the masses of earth which were thrown outside the walls of Mycenæ during the excavation of the citadel. When these plans have been carried out, and the excavations at Samos and elsewhere completed, a great archæological congress is to be held at Athens.

The French School has now completed its work at Delphi, and is engaged in arranging the museum and clearing away the débris from the ruins. Members of the school, however, have been active at several places. At Delos the heaps of rubbish which were piled up in the sacred enclosure are being removed, and back of the "small portico" an agora, surrounded as usual by a colonnade on the other three sides, has been cleared. At Tenos H. Demoulin has found the temple of Poseidon and Amphitrite surrounded by many other buildings, and has in his first campaign secured a number of inscriptions and some interesting sculpture. More important apparently are the results at Argos, where the low hill anciently called *Aspis* (The Shield) has been explored, and remains of walls and houses of a very early, apparently pre-Mycenæan period, discovered. The cyclopean walls, and also a Greek wall forming part of the later fortifications of the city, have been traced. Tombs of the Mycenæan period have been found between the Aspis and the lofty Larissa, and there are reports of a senate-house, and small temple with inscriptions relating to the worship of Apollo, as well as terra-cottas, vases, statuettes, and other small finds.

Besides the work at Pergamum, Dr. Dörpfeld has continued his work at Leucas, which he regards as the Homeric Ithaca, and has at last found traces of a considerable prehistoric settlement, and an ancient conduit through which water was brought in earthenware pipes, recalling the fountain near the palace mentioned in the Odyssey.

The chief excavations in Greece are, however, those of the American School at Corinth, where the campaign of 1902 has been better rewarded than that of the preceding year. The work this season continued from the beginning of March to June 14, an unusually long period, and cost $3200, for which, as usual, it was necessary to depend on private subscriptions. On the south side of the temple hill a Greek stoa, some 350 feet in length, was cleared. The back was formed by a retaining wall of the temple terrace, and in some places the rock was cut away to make room for it. It was provided with a double row of columns, Doric in front, and half as many Ionic columns in the interior. The architectural remains are sufficient to make possible a complete restoration on paper. In later Roman times a row of vaulted chambers opening on a new portico was built in front, and for these the remains of an old Greek building furnished a foundation. At the east of the temple hill was found another similar row of chambers, at right angles to those on the south, and back of them up the hill was an open space bordered by a very late stoa. Under this building were found the foundations of a much older Greek stoa of great size. Beneath these buildings were several conduits for water, and in one of them were

found about 200 lamps, many of them with inscriptions. The small objects include bushels of early pottery, a large number of figurines, some of which are fine examples of archaic art, and a number of inscriptions, including one of the sixth century B.C. in the local alphabet. As heretofore, these results have required enormously deep digging and the removal of large masses of earth. A trial trench at the theatre resulted in the discovery of a complicated series of walls at a depth of more than twenty-five feet. It is planned to attack this building as a part of the next season's work, provided the necessary funds can be secured.

An earlier undertaking of the American School is recalled by the appearance of *The Argive Heræum*, by Charles Waldstein and others (Vol. I: Boston and New York, 1902), containing an account of the excavations on that site from 1892 to 1895. This volume contains the general account of the excavations and detailed discussion of the geology of the region, and the sculpture in marble, the architecture and the inscriptions, with a large number of very fine plates. The second volume is to follow soon, and will contain the vases, terra-cottas, bronzes, and smaller articles generally.

Italy and the West.—In this region the reports for 1902 are a decided contrast to those from the East, and to those of earlier years. Not that there has been any decrease in activity, for the *Notizie degli Scavi* of the Italian government bear witness to numerous undertakings, and the French, Germans, and English are not neglectful of ancient remains within their borders. The results, however, are by no means sensational, and very few striking discoveries have been made. In Italy the prehistoric period has received additional light by the opening of tombs at many places, notably at La Pretara, near Atri, where were found three groups containing objects of bronze and iron, and a series of rather poor vases, chiefly remarkable for their large number of handles. At Torre Annunziata, a coast suburb of Pompeii, excavations brought to light a portico and shops, with many small articles and a number of skeletons. The discovery of a fine bronze statue representing a seated Heracles, and probably to be referred to the time of Lysippus, has also been reported from this region. In Pompeii the houses recently opened, though containing some interesting paintings, have not yielded any very striking objects. In Rome itself the work at the Forum has continued, especially about the temple of Castor, which has proved to be peripteral, and in the Atrium Vestæ, where more traces of the older house have been discovered. The earlier course of the Sacra Via has been further traced, and it now seems clear that its line was altered somewhat by Hadrian to make room for the temple of Venus and Rome. Much interest was aroused by the discovery between the temple of Antoninus and Faustina, and that of Romulus, son of Maxentius, of three prehistoric graves, the first ever found in this vicinity, and probably belonging to the necropolis of the early settlers of the Palatine. The first found contained a large urn or *dolium*, with a conical lid, and in this a "hut-urn" containing the ashes and several rude vases. The other graves were similar, and all resemble in all essentials the early cemeteries of the Esquiline and the Alban mountains. There is nothing in these discoveries to cause any surprise, and the accepted views as to the early settlements on the Roman hills are merely confirmed, but not modified, by the finding of another necropolis. Two publications of interest in Roman archæology are the work of Maurice Besnier, *L'Ile Tiberene dans l'Antiquite* (Paris, 1902), and the first volume of the *Annual* of the British School at Rome. The former contains a very full history of the island where the Romans established their temple of Æsculapius, and of all its antiquities, together with a valuable bibliography. The latter contains a full discussion by Mr. Rushforth, the director, of the Church of St. Maria Antiqua, built about 600 A.D., and its ancient paintings, which are divided into groups, the earliest contemporary with the building, and the latest belonging to the end of the eighth century. The church is on the site of an earlier building, perhaps connected with the entrance to the Palatine, while the paintings show that they were executed when Rome was artistically a Byzantine city. In the same volume Mr. Ashby presents a monograph on the ancient roads through the Campagna and the monuments which line their sides. Of unusual importance is the publication of vol. I. of the *Storia degli Scevi di Roma*, by R. Lanciani (Rome, 1902), in which the history of the excavations, discoveries, and of the plundering and destruction of the ancient monuments has been compiled from the original documents preserved in many public and family archives, by one who for twenty-five years has devoted himself to these researches. In the present volume the period from 1000-1530 A.D. is treated, and four more volumes are to bring the narrative to the overthrow of the Papal government in 1870.

In Tunis the chief activity seems to have been at Carthage and Dougga (Thugga). At the former an early Punic necropolis has been found, yielding much information as to early Carthaginian burial customs; near by was a whole series of potters' ovens, one of which was almost entire, and made clear the methods used in producing the early vases. A later necropolis contained a series of burials from the

third century B.C. to the capture of the city by the Romans (B.C. 146). Here also the Odeum was excavated, and proved to be of very large size, with a rectangular stage and semi-circular *cavea* for the spectators. Among the discoveries of artistic value are some marble sarcophagi, some adorned with paintings, and one said to be sculptured in the style of the best Greek art. In one case the coffin was nearly full of resin, in which the corpse had been preserved. The French government has published a systematic account of the ancient monuments in Algiers, written by S. Gsell, the very competent director of the Museum, and entitled *Les Monuments Antiques de l'Algerie* (2 vols., Paris, 1902). Its full descriptions and authoritative treatment of the whole subject make this the standard work for this field.

ARCHÆOLOGY, AMERICAN. The year 1902 witnessed certain notable movements indicating a growing recognition of the importance of American archæology not only as a field of original research, but as a feature of general culture. Thus, the Archæological Institute of America has provisionally established a fellowship for American work, and has introduced lectures on this theme in its general courses; and, in connection with this expansion in its work, the Institute has enjoyed a decided development in activity, marked by the establishment of new branch societies as well as by increase in membership. Another movement of note was that toward the establishment of an International Archæologic Commission, designed to occupy the western hemisphere as its field. This movement originated at the Pan-American Conference held in the City of Mexico during the winter of 1901-1902. Largely at the instance of Dr. Alfredo Chavero, of Mexico, and Hon. Volney W. Foster, of Chicago, the conference adopted a resolution recommending to the several countries represented that such a commission be created on a basis analogous to that of the Bureau of the American Republics; the objects of the commission being (1) to work for the unification of laws relating to the preservation of antiquities in the western hemisphere, (2) to obtain and diffuse accurate information concerning such antiquities, and (3), if practicable, to obtain provision for a museum of international character. The Mexican government took prompt action on the recommendation. President Diaz designated Dr. Chavero as the representative of that country in arranging for the organization of the commission, and he visited Washington about the time of the International Congress of Americanists in order to confer with archæologists and other learned men from different American countries; and, pursuant to his recommendations, the consummation of the plan on the part of the American republics south of the United States was turned over to their several accredited representatives. Dr. W J McGee was designated through the secretary of state, as a similar representative for the United States. The plans of the commission were well advanced, though not matured, by the end of 1902. A fresh impetus was given to archæologic study by the International Congress of Americanists held in New York in October, 1902, and by the subsequent excursion of the participants to several points of archæologic interest—notably, the imposing antiquity in Ohio known as Fort Ancient. While this organization is devoted to the early history of America as well as to the study of the surviving aborigines and antiquities, it usually happens that archæology receives the lion's share of interest; this was conspicuously true of the congress in New York, where most of the students of archæology in America were assembled, and where about half of the fuller communications related to American archæology. The contributions concerning the antiquities of Mexico and Central America, as well as of Peru and Argentina, were especially rich and valuable.

Instrumentalities.—The chief instrumentalities for archæologic research are the public museums. The United States National Museum has continued collecting and classifying material from this and other countries, of which a large part relates to prehistoric man. Among the notable collections of 1902 were those made by Dr. Frank Russell in Arizona, in the course of his work as an officer of the Bureau of American Ethnology, and the various interesting objects obtained by Dr. J. Walter Fewkes in Porto Rico under the same auspices. The latter collection comprises several carved stone "collars" or "yokes" of well-known type, but of which the use has never been adequately explained. Some of the Fewkes specimens are carved with serpent symbols, and one or two are shaped in manifest imitation of serpent bodies; and this symbolism, agreeing as it does with devices on some of the "yokes" found in Mexico, aids in the interpretation of the objects. Many of the Mexican specimens are of the shape, and about the size, of an ox-bow (hence the designation "yoke"), so that the object forms an open loop, symmetrically carved, of diorite or other stone; the weight usually ranging from 25 to 75 pounds. The surface is sometimes plain, sometimes finely polished, sometimes carved with symbolic devices. The finest known specimen (in possession of Dr. Chavero, Mexico) is elaborately carved with the devices characteristic of aboriginal Mexican art, executed with such skill and delicacy as to give it rank among the finest products of native American sculpture. The Antillean specimens (including those collected by Dr. Fewkes) are usually closed, forming somewhat elongated annuli, whence the designation "collar,"

applied by early collectors. On putting together the various facts of symbolism and the meagre items of information concerning the ceremonial use of the objects, it is found that they represent what may be called the occidental crescent, i.e., that their symbolic meaning is akin to that originally underlying the oriental crescent, though the western symbol represents a somewhat earlier stage of development than the Indian and Arabian yoni and the crescent of the Turkish standard. Summarily, the object seems to be a symbol of fertility, or rather of fecundity, connected with corn and other plants, rain, the sun, the serpent, life, maternity, and other ideas of a long series closely associated in the primitive mind. Accordingly the objects were analogous in meaning and use to the rings employed in various aboriginal games, to the hair-whorls of Zuni maidens, and to various other mystical devices developed in the more arid districts of the western hemisphere; doubtless they were used in ceremonial invocations for rain and for the growth of crops, though the most decisive evidence of use was in connection with girls' puberty feasts. During the year the United States National Museum collections were rendered more accessible by the installation of a series of galleries; yet the building remains wholly inadequate —so that but a fraction of the material is accessible for study. The American Museum of Natural History (New York) has continued in rapid growth, and now stands among the foremost institutions of its class in the world. Among the notable archæologic collections installed during 1902 were those of Dr. Saville, from Honduras, and of Dr. Pepper and others, representing the Hyde expedition in Arizona; while the Jesup North Pacific expedition continued to yield abundant antiquarian as well as ethnic material. The Peabody Museum of Archæology and Ethnology (Cambridge) maintained steady growth; the Carnegie Museum (Pittsburg) was enriched by the addition of notable archæologic material, including certain beautiful specimens of aboriginal carving obtained by the director, Dr. W. J. Holland, from Mexico; the Field Columbian Museum (Chicago), through the efforts of Dr. George A. Dorsey, made particularly valuable collections of objects representing the transition from prehistoric to modern culture in California as well as among the plains tribes; the Free Museum (Philadelphia) gained rich collections under the direction of Dr. Stewart Culin; the Golden Gate Park Museum (San Francisco) continued the collection of ancient as well as modern Indian material; while the nucleus of the Hearst Museum, connected with the University of California (Berkeley), afforded opportunity for notable investigation as well as collection. Several State institutions gave attention to local antiquities, the surveys and examinations of mounds by Mills, under the auspices of the University of Ohio (Columbus), being especially valuable and significant. The Museo Nacional of Mexico increased its activity during 1902; Dr. Nicolas Leon, recently placed in charge of the department of archæology, installed a rich series of crania and other osteologic material (chiefly prehistoric) representing various districts of Mexico; while early in December Dr. Alfredo Chavero, distinguished as an archæologist no less than as a statesman and scholar, was made director of the institution. The museum connected with the department of education in Toronto (Canada), which is devoted chiefly to Canadian archæology, continued normal growth under the direction of David Boyle. Other institutions engaged in archæologic work are noted elsewhere. See ANTHROPOLOGY IN AMERICA.

Human Antiquity.—Various observations of the year 1902 served to renew discussion of the question of the antiquity of man in America. The most widely discussed discovery was that of the "Lansing man" in the bluffs of the Missouri River, near Lansing, Kan. Early in the year the Concannon brothers (farmers) found a human skull and other bones at a depth of over twenty feet from the surface, in a tunnel, or vault, excavated in a hillside to form a place of storage for vegetables and fruit. The skull was at first broken up and thrown out with the débris; but the occurrence came to the knowledge of Prof. J. H. Long, of Kansas City, who restored the cranium from the fragments, and afterward to that of Prof. S. W. Williston (then of the University of Kansas but now of the University of Chicago), Professor Haworth, and other geologists, who visited the locality and studied the associations. Professor Williston published a preliminary account, which led Prof. N. H. Winchell, State geologist of Minnesota, and Mr. Warren Upham, of Minneapolis, to make a more extended examination of the region about Lansing; and these geologists published their interpretations. Later, Profs. T. C. Chamberlin and R. D. Salisbury, of the University of Chicago, with Prof. Samuel Calvin, of the University of Iowa, and Prof. W. H. Holmes, of the United States National Museum, made a critical study of the deposits; while Dr. Ales Hrdlicka and Dr. George A. Dorsey examined and measured the cranium and other bones. All authorities are in agreement concerning the osteologic material; none of the bones are fossilized, and most of them are quite well preserved; and the skull is of the ordinary Plains Indian type in size, form, and other characters. The determinations of the age of the deposit by the geologists are, however, widely diverse; the discrepancy growing out of difference of opinion as to whether the deposit in which

the bones were found is original loess, undisturbed until the time of the excavation, or whether it is a secondary (redeposited) accumulation of material derived from the loess. The former view is strongly held by Winchell and Upham, who point out that, according to their determinations, the deposit agrees with undisturbed loess in chemical and mechanical constitution, and that it is continuous with the main body of that deposit as developed in the adjacent river bluffs; accordingly they correlate it with the closing stages of the Iowan epoch of the ice age—i.e., they assign it to about the middle of the Glacial Period. The chronology of the stages of this period is not, of course, measurable in years; but most geologists would agree that this determination would give the "Lansing man" an antiquity of somewhere between 10,000 and 75,000 years. On the other hand, Chamberlin, Salisbury, and Calvin agree in regarding the deposit as a secondary accumulation perhaps only a few centuries old; they find the materials to effervesce under acid less easily than those of undisturbed loess, indicating a less abundant element of undecomposed carbonate of lime. They also note the presence of rock fragments unlike those sometimes found in the base of the loess, and ascribe them to the agencies of redeposition; and the first named especially discuss the mechanics and known history of the Missouri River and its bottomlands, as well as the local configuration of the bluffs, with the view of demonstrating not only the possibility but the probability that the deposit in question was laid down as a sort of delta by the streamlet heading in the adjacent hills and now embouching through a narrow gorge into the Missouri a short distance from the excavation in which the remains were found. Pending agreement between the principals in the discussion or corroboration of one view or the other by extended independent studies, opinion as to the antiquity of the "Lansing man" is naturally held in abeyance; though the inertia of conservative thought, together with the harmony between the Chamberlin interpretation of the deposit and the determination of the characters of the school, favor the view that the remains are of no great antiquity. See GEOLOGY (paragraph Glacial Geology).

In connection with the congress of Americanists in New York, Professor Putnam brought together the human remains and artifacts collected at Trenton (N. J.) under his direction by Mr. Ernest Volk during several years of continuous work conducted through the munificence of the Duc de Loubat and Dr. Hyde, of New York. These attracted much attention. The deposits in which they were found are either late aqueo-glacial accumulations or later accumulations produced by winds or storms; while the depth at which most of the relics were found was so limited as to be within reach of surface disturbance. One of the relics, however, is of special significance because found at a considerable depth in apparently undisturbed deposits of later Glacial Age. This is a bone, apparently a human femur, which, although so far decomposed as to render the determination in some degree doubtful, appears to have been cut squarely across at one end, sharpened at the other end, and perforated about mid-length. The whole appearance of the object suggests that it was artificially shaped for use as a handle for some sort of cutting implement, or for attachment to the shaft as a harpoon head or javelin point. The object is specially noteworthy as affording the most decisive bit of evidence of high human antiquity in America thus far recorded. The geologic associations indicate that it antedated somewhat the last, or Wisconsin ice invasion of the Glacial Period, an epoch commonly estimated at from 6000 to 20,000 years in the past—10,000 years being a fair average of the estimates. Certain of the human crania found at Trenton are of much interest by reason of small size and other primitive characteristics; they were recently described and discussed by Hrdlicka, who shows that they do not correspond with the skulls of the tribes found in the same region by the earliest white settlers. On the whole the question of the antiquity of man in America must be regarded as far from settlement. So far as occurrences of human relics in geologic deposits of known age are concerned, the evidence of high human antiquity seems less decisive now than a quarter-century ago, chiefly by reason of the more critical weighing of details with increasing knowledge; yet it is significant that what may be called the ethnologic indications point to a greater antiquity of the American race than the geologic evidences thus far recorded. Thus (neglecting the Calaveras skull, which would, if the recorded associations could be verified, carry the peopling of America millions of years into the past), the most trustworthy geologic testimony —that of the Trenton femur—would carry man back not more than 10,000, or, at the maximum estimate, 20,000 years, and the extreme estimate of the age of the "Lansing man" is not much greater; while the conservative student of the native tribes, familiar with the slow advance of primitive peoples, finds it difficult if not impossible to conceive of the distribution of men over the American hemisphere, the development of a multitude of distinct tongues, the growth of industries adapted to every environment, the establishment of distinctive systems of social organization, and especially the development of numerous mythologic systems with attendant ceremonies and traditions running back through uncounted generations, within so short

a period as ten or twenty thousand years. Accordingly the condition of the question is such as to encourage research on the part of archæologists and geologists alike. See ANTHROPOLOGY IN AMERICA.

ARCHITECTURE. In the architectural record of 1902 the event that attracted the most widespread attention was the fall of the historic Campanile of Saint Mark at Venice, on July 14. Its collapse was not wholly without warning, and no lives were lost. The adjoining palace of the Library, Sansovino's masterpiece, was somewhat damaged, but the church of Saint Mark was wholly uninjured. The disaster was not due to faulty foundations, but to defects of construction and inadequate repairs; and the architect in charge, Signor Saccardo, who was promptly removed from office, declared that the responsibility for it lay with those officials who had ignored his warnings and refused to order the repairs he had persistently urged. The tower will be rebuilt in the form it has had ever since the alterations of the sixteenth century.

In the United States the year was distinguished by an extraordinary activity in building. In New York there were contracted for or completed during the year business buildings and apartment-hotels alone aggregating over $75,000,000 in cost, while in other lines the record was almost equally remarkable. Never before were so many important buildings planned or erected in one year for the national government, both at Washington and elsewhere; while in the building of all sorts of public buildings and private residences the activity was remarkable, especially in the eastern, middle, western, and Pacific coast States (see BUILDING OPERATIONS). The general average of quality in all this architecture shows progress in taste, with few or no especially brilliant achievements to record. In sharp contrast with present European tendencies toward a veritable anarchy of caprice in design, the tendency in the United States has been in the main towards classic models freely handled. There was in 1902 an increased activity in the agitation for the artistic remodeling of our cities, of which the most conspicuous example is the Washington improvement scheme, projected in 1901, and vigorously urged in 1902 with fair prospect of official adoption. Indeed, the notable building for the Department of Agriculture (Lord and Hewlett) has already been assigned a site in accordance with the scheme reported by the commission, and steps have been taken for the removal of the Pennsylvania railroad tracks and station from the Mall to a new site, where a terminal, to cost $5,000,000, is to be built from plans by D. H. Burnham. The governor of Ohio has appointed J. M. Carrère and A. W. Brunner, of New York, as experts to arrange for the planning of the new group of municipal buildings at Cleveland, O., in accordance with a somewhat similar project for municipal improvement; while in New York Mayor Low has consulted the Municipal Art Society with a view to appointing a commission to consider broadly the whole question of municipal improvement, and Bridge Commissioner Lindenthal has engaged a competent architect to collaborate with the engineers in the design of all the colossal new bridges across the East River now projected or under way. Important monuments have been erected or awarded in competition in many cities, notably in Philadelphia, which is to erect a great monument to her soldiers and sailors from competitive designs by Lord and Hewlett. In New York the soldiers' and sailors' monument on Riverside Drive, an ornate and dignified circular edifice, by C. W. and A. A. Stoughton, was dedicated May 30. An extraordinary number of public libraries have been projected or erected during the year in almost or quite all the States, the most conspicuous being the palatial New York Public Library, now actively under way on foundations laid in 1901 (Carrère and Hastings). The United States government has secured by competition under the Tarsney act several admirable designs for federal buildings, while those emanating from the office of the supervising architect, Mr. J. K. Taylor, display the results of efficient administration and good taste. Architectural enterprises for 1902 in Washington include a new municipal building (Cope and Stewardson), city hospital (F. M. Day), public library, railway terminal and buildings for the Department of Agriculture and the Supreme Court. In New York, among structures not already referred to, we may mention the new custom house (Cass Gilbert), Stock Exchange (G. B. Post), City College buildings (G. B. Post), forty branch libraries, lady chapels for the cathedrals of Saint John the Divine (Heins and Lafarge) and Saint Patrick (C. T. Mathews), begun in 1902; new wing of Metropolitan Museum of Art (Hunt and Hunt), Chamber of Commerce (J. B. Baker), "Flatiron building" (D. H. Burnham), three great department stores, several large hotels, and several palatial residences completed or in progress. In Chicago the chief activity has been in commercial buildings and private residences. The dilatory construction of the Chicago postoffice has caused dissatisfaction. At St. Louis progress has been made in the Louisiana Purchase Exposition (*q.v.*); in the buildings for which, chiefly of steel, staff, and glass, classic treatment predominates. There has been continued progress in taste and achievement in landscape gardening and formal gardening in the United States. The archi-

tectural profession has lost in 1902 by death in Philadelphia the veteran J. M. Wilson, A.I.A., and the talented Walter Cope (of Cope and Stewardson), perhaps the ablest of Philadelphia architects; at Washington, Edward Clarke, aged eighty, architect in charge of the Capitol for many years; and, at New York, James Brown Lord, architect of the Appellate Court and other important buildings.

In *England*, the year's record has been less satisfactory, owing in part to the effects of the South African war. Indignation is felt in London at the adoption of an unworthy design for the Vauxhall bridge, soon to be erected. The Liverpool cathedral competition brought out no strikingly able designs, and the advisers, R. Norman Shaw and G. F. Bodley, selected six architects for the final competition on the basis of their professional achievements rather than of their competitive designs. The cathedral will cost $1,000,000, too small a sum for the best results. The new Roman Catholic cathedral at Westminster, by the late J. F. Bentley, has been externally completed and made ready internally for the decorators, at a cost of nearly $2,000,000. It is modeled in plan after the domical churches of Charente; externally its architecture is strongly personal and eclectic, but the whole is admitted to be a noble monument to its lamented designer. The War office (Young) and Government Board buildings (Brydon) have not yet been completed. Competitions have been held for municipal buildings, or their erection begun, in many towns, as at Aldershot, Barry, Colchester, Creeve, Deptford, and Tottenham. The design of the Birmingham University buildings was awarded to Aston Webb and Ingres Bell, architects also of the Naval College at Dartmouth, and of Horsham Schools. The new Criminal Courts in the Old Bailey (E. W. Mountford), and the great electric station on Grove Road (Peach and Reilly), a strong and original design, were begun. Many important competitions were held, but often under conditions so unsatisfactory that a National Society was formed to promote their proper conduct and adjudication. The discussion as to the licensing and registration of architects has continued with no positive results. The annual gold medal of the Royal Academy in architecture was awarded to Mr. T. W. Collcutt.

On the *Continent of Europe* the most noticeable feature in the architecture of 1902 is the astonishing invasion of the so-called "Art Nouveau" into architectural design, producing results in most cases deplorably fantastic, and destitute of the fundamental qualities of repose, dignity and structural propriety. In the Düsseldorf exhibition (Hoffacker, Storck, and others) the vagaries of this freak architecture reigned supreme, and this was in a measure true of the exhibition at Olmütz, and the important Exhibition of Art and Industry at Turin, although here the work of Signor d'Aronco in the main building was sufficiently vigorous and thoughtful to save it from the charge of utter absurdity. In Paris, this species of anarchy in design has even been premiated in the annual award of prizes for the best façades erected during the year, in the eccentric façade by M. Lavirotte on the Avenue Rapp. The other prizes were for designs of a less bizarre character. The new Paris building act has relaxed the restrictions upon projections from the plane of the façade. The use of brick and concrete, reinforced by metal (*brique armée* and *béton armé*) in architecture has greatly increased in Paris, to the detriment of elegance and solidity of design. Two new bridges have been projected to be built across the Seine at Paris in 1903, at a cost of $700,000. There have been no architectural enterprises of the first rank to be credited to the French in 1902.

Among buildings planned or completed in 1902 in *Germany* may be mentioned Conrad's High School for girls, at Wiesbaden, in a well-studied late Gothic style; at Munich the dignified and successful buildings for the new Northern cemetery, by Hans Grässel, in a modernized Byzantine style; and the new public baths by K. Hocheder, with an imposing swimming-hall. A competition for a monument to Bismarck brought out some admirable and vigorous designs; it was won by the architect, E. Schandt. The new Berlin Electric City Railway reveals, in the well-designed details of its construction and in several of its stations, some of the best results of the free modern treatment applied to structures of metal and masonry, in pleasing contrast to the extraordinary vagaries of the "New Art" in many of the new residences and public buildings. In *Austria*, the competition for the new Municipal Museum at Vienna resulted in the adoption of Schacher's design in preference to that of Professor Wagner. The announcement of a competition for a monument to the late Empress Elizabeth, and the Secessionist exhibition at Vienna, held in an extraordinary Art Nouveau building by Professor Hofmann, are worthy of mention. In *Italy*, the Turin Exhibition and the fall of the Venetian Campanile have already been alluded to. Italy has only to a limited degree experienced the Art Nouveau craze, which has run to such extremes in France, Germany, and Austria.

ARCTIC EXPLORATION. That vexed question as to which is the best route to the North Pole, the Smith Sound route or the Franz Josef Land route or the Bering Strait route, was not settled in 1902 after all. Expeditions were in the field to demonstrate the practicability of the Smith Sound route and the Franz Josef Land

THE NEW WHITE HOUSE BUILDINGS

route, but owing to conditions that had little to do with the routes themselves, the Pole still remains undiscovered. Neither route was fairly tested. Lieut. (now Commander) Robert E. Peary, who set forth to seek the Pole from the American side of the world, was prevented from accomplishing valuable results by the smallness of his party. On the other hand, Mr. Evelyn B. Baldwin, who attempted the adventure of the Pole by way of Franz Josef Land, was apparently hampered by bad material in his party and by insufficient equipment—although this item in his plan was supposed to be extraordinarily well cared for. In 1902 neither Mr. Peary nor Mr. Baldwin accomplished much in the way of adding to the world's information about the Arctic regions. The only explorer in the north who returned in 1902 with valuable discoveries to describe was Capt. Otto Sverdrup (*q.v.*), who was the commander of the *Fram* during Nansen's drift across the Arctic Ocean in 1893-95, and had set forth in the same vessel in 1898 to make explorations in Greenland waters. Reports of Captain Sverdrup's discoveries are somewhat vague in one or two details, but it is certain that the *Fram* party pushed through Jones's Sound to the west coast of Ellesmere Land and explored this coast north as far as the 81st parallel. Moreover, they discovered new islands of considerable extent lying above the Parry Islands, to the west of Ellesmere Land. The details of the expedition are as follows.

The West Coast of Ellesmere Land.—Captain Sverdrup started in 1898 in the steamship *Fram* to circumnavigate Greenland by way of Smith Sound. There were sixteen men in the party, six of whom belonged to the scientific staff. Among them were Lieutenant Isaachsen; Mr. Bay, zoologist; Mr. Simmons, botanist; Mr. Schei, geologist; Mr. Svendsen, surgeon. The *Fram* was checked by the ice in Kane Basin and was seen there by Mr. Peary in the summer of 1899, but for two years thereafter no news of her was received. There was some apprehension that she might be lost. The alternative conjecture was that she might have abandoned the plan of exploring upper Greenland and given her attention to Jones's Sound, which bounds Ellesmere Land on the south; and this conjecture turned out to be accurate. On August 22, 1899, having found it impossible to penetrate the ice in Kane Basin, Captain Sverdrup turned his ship southward. He entered Jones's Sound, established winter quarters on the south side of Ellesmere Land, latitude 17° 29′ North, longitude 84° 24′ West. He spent the fall in making preliminary boat journeys to the westward for the purpose of laying down depots of supplies to be used in a sledge journey in the spring. During the fall, in the absence of the captain, one of the party, Braskerud, caught cold while out hunting and died. On March 17 and 20, 1900, a sledge journey in two parties consisting of nine men set forth along the southern coast of Ellesmere Land, and proceeded until the 31st of March, when they had covered 175 miles. Here the supporting party, consisting of five members, returned to Björneborg, which was the name that had been given to the main depot of supplies. The other four men, composing two parties, each with supplies for fifty days, continued westward. Opposite North Kent they discovered a bay 100 miles broad, extending eastward into the coast of Ellesmere Land. The northern side of this bay was penetrated by deep fjords. Beyond the mouth of the bay, Ellesmere Land extends about fifty miles to the westward and then the coast turns north. At the 79th parallel, on April 16, the two parties separated; one, consisting of Isaachsen and Hassel, kept on to the west to explore new land that had been sighted. The explorers reached this land at the 98th meridian, whence they returned to the coast of Ellesmere Land and traveled southwards, discovering a system of fjords and exploring some of them. They returned to the ship on June 19, 1900. Meanwhile the other party, consisting of Sverdrup himself and Fosheim, had proceeded northward along the Ellesmere Land coast, which they found much broken by fjords, as far as the 81st parallel. They then returned to the ship, arriving on June 2. Also a third party, made up of Schei and Henriksen, had explored two minor islands lying north of Jones's Sound, and had made a journey to the northern end of North Kent. During the absence of the parties, the awning of the *Fram* caught fire from the funnel and ignited the mainmast. Kayaks were stored underneath the awning, as well as musk-ox skins and several bear skins, and these were burned. A water hole had been kept open alongside the vessel for such emergencies, and the fire was soon subdued. By the 9th of August the ice had broken up sufficiently to permit the moving of the *Fram*, and she proceeded westward as far as the 89th meridian and took up new winter quarters in a fjord (latitude 76° 48′ North, longitude 89° West). The autumn was spent mainly in hunting. In the sledging season of 1901 two parties again set out: Isaachsen and Hassel westward, to explore the new land they had touched the preceding season; Sverdrup, Fosheim, Raanäs, and Schei to ascertain whether the northern coast which Sverdrup had investigated during the preceding spring was cut off from Ellesmere Land by a sound. The party that explored the islands to the westward discovered at about the 78th parallel a strait separating North Cornwall from the land situated to the north. They followed the southern coast of this land through the strait and northward to its limit

at latitude 79° 30′ North, longitude 106° West. From this point no land could be seen either to the west or to the north. The party then turned eastward and, following along the northern coast of the new island, returned to Ellesmere Land and then to the ship, which they reached June 7, 1901. The new country is rather low as compared with Ellesmere Land—not more than 1000 feet at its highest point. Meanwhile Sverdrup's party became involved in fjords on the Ellesmere Land coast and reached only 80° 30′ North. The *Fram* was not released from the ice during the summer of 1901, and in the season of 1902 Captain Sverdrup and Mr. Schei made a journey up the west coast of Ellesmere Land for the purpose of reaching the point that Lieutenant Aldrich of the Nares expedition had reached in 1876, but they failed to accomplish this aim by about fifty miles. The remainder of the sledging season of 1902 was spent in minor explorations. On August 6, the *Fram* left her anchorage and she reached Sweden August 29. The party was amply supplied with game during the whole time. Musk-ox, reindeer, and wolves and Arctic hares, abound in Ellesmere Land. Ice bears are numerous, and in the waterways walrus are abundant.

The Peary Expedition.—Lieut. (now Commander) Robert E. Peary (*q.v.*) returned from Greenland in 1902 and, not content with having made the most extended series of Arctic explorations ever accomplished by any single leader, including the discovery of what is perhaps the spur of land nearest to the North Pole, announced his intention of making another attempt to reach the Pole itself, provided that funds could be procured for the maintenance of a party. Commander Peary still believes in the Smith Sound route. In his "dash for the Pole" in 1902, however, he found himself unable to proceed beyond latitude 84° 17′ North, mainly because of lack of men and the delay in starting across the sea ice, due to the fact that his headquarters were too far south of the Polar ocean. He spent the winter of 1901-02 at Payer Harbor near Cape Sabine. On March 3, 1902, an advance party of six sledges, under the command of Mr. Peary's colored servant, Matt Henson, started to transport provisions to Fort Conger, and on the 6th eighteen more sledges left Cape Sabine. From Fort Conger it was necessary to carry supplies to the edge of the ocean at Cape Hecla, and thus a difficult preliminary journey of more than 400 miles had to be accomplished before the explorer could leave the land—a journey that would have been unnecessary, had the explorer carried a party strong enough to establish a headquarters at the limit of solid ground. On April 1, with Henson, four Eskimos, and six sledges, the leader set forth over the rough ice of the Polar sea. After fifteen days, confronted with small floes, of which the edges were crumpled into mounds sometimes fifty feet high by the pressure of the pack, he was forced to abandon further advance. He reached Cape Hecla on April 24 and continued to Cape Sabine, where he arrived on April 29. The auxiliary steamer *Windward,* which had left Sydney, Cape Breton, on July 24, bearing Mrs. Peary and her daughter Marie Anneghito, reached Payer Harbor on August 5, 1902, took off the explorer and his party, and made way toward home the same afternoon.

During the winter an epidemic ran through the tribe of the most northern Eskimos, upon whom Mr. Peary relied as aids to his expedition. A large number of them died. Dr. Diedrick, who was released from the explorer's party in 1901, but remained in Etah on the Greenland side of Smith Sound so that the party might not be without the services of a physician, returned with the *Windward,* having lived with Eskimos during the winter. He announced that he had made one call on the explorer, and that food had been refused to him.

The plans for reaching the North Pole in future, as announced by Mr. Peary, are an evolution of schemes put forward at different times by various explorers: a headquarters on the furthest attainable land, supported by a line of caches down to the limit of regular navigation; a large supporting party to replenish the supplies of these caches and of the headquarters; and a dash with a light party over the ice floes. The new features of Mr. Peary's plan are a light pioneer party to go in advance of the main party, for the purpose of mapping out a route, and the use of Eskimos in the preliminary work. In fact, the explorer has in mind the redistribution of the entire tribe of Whale Sound Eskimos in a series of settlements extending from Cape Sabine in the south to Cape Hecla, the proposed point of departure of the "dash for the Pole." Commander Peary also plans to start on his Polar trip early in February, at an earlier date than any previously chosen by him.

The Baldwin-Ziegler Expedition.—The flagship *America* of the Baldwin-Ziegler expedition, which left Norway July 17, 1901, to seek the North Pole with what was supposed to be the most elaborate equipment that was ever furnished to an Arctic expedition, returned to Honningsvaag, August 1, 1902, with the report that nothing but preliminary work had been accomplished. The leader, Mr. Evelyn B. Baldwin, reported that during 1901 all the channels by which he hoped to reach by ship the northern island of the Franz Josef archipelago were blocked with ice. Repeated efforts to force the vessel north only depleted the coal supply. By means of sledge journeys, however, Mr. Baldwin transported depots of provisions from Alger Island, where he

made his headquarters, to Cape Claire, to Greely Island, and finally, to Prince Rudolf Land. These expeditions wore out most of his sledges, but demonstrated the usefulness of a new element in Polar expeditions—the use of ponies instead of dogs as traction animals. One of Mr. Baldwin's ponies could do the work of a good-sized team of dogs, and the difficulty of keeping the dog team in order is obviated by this method of transportation. The sledge journeys lasted from January 21 to May 21, 1902. Of the sixty sledges with which the expedition was equipped, fifty were destroyed. Of the 420 dogs that started with the expedition 150 died of an epidemic. Food for the remainder was running short, as well as food for the ponies, and as the coal supply had become meagre, the leader decided to return to Norway to procure fresh provisions. A dissension between Mr. Baldwin and his shipmaster, Capt. Johanssen, arose, moreover, during the winter, and Mr. Baldwin deposed the captain from command of the vessel. In Norway the captain took legal measures against the leader for this action, but was not sustained by the court. According to the announcements when the expedition started out in 1901, Mr. Baldwin was to receive the support of Mr. Ziegler for continued efforts to reach the North Pole, in case the attempt of 1901-02 should fail; but the patron of the expedition recalled the leader to America. It is rumored that Mr. Fiala, a photographer, who accompanied the expedition, has been selected by Mr. Ziegler to lead another expedition by way of Franz Josef Land, taking advantage of the caches that were placed by the Baldwin party. Meanwhile the steamship *Frithjof*, the auxiliary vessel of the expedition, had left Vardö for Franz Josef Land on July 7, 1902. She was unable to reach Alger Island, and returned to Norway.

Baron Toll.—In addition to the three expeditions that were in the field in 1902 for the purpose of discovering new lands, other explorers were in the north, filling in the details of lands already partly known and carrying out purely scientific research. Among these is Baron Edouard Toll, who in the ship *Zaria* has been in the Arctic waters since 1900. In the spring and summer of 1901, sledge parties set forth from the *Zaria*, which was ice-bound, for the purpose of exploring and surveying the Chelyuskin Peninsula and neighboring lands. Parties unsuccessfully attempted to discover the mouth of the Taimyr River. The *Zaria* was freed from the ice August 24, 1901, and cruised for a month in the waters near the New Siberian archipelago. On September 16 they met a relief party headed by K. A. Vollosovitch in Seal Bay, Kotelnyi, which remained with Baron Toll until February 27, 1902, and then returned to Irkutsk in safety. On May 1, 1902, Dr. Birula, the zoologist, with three Promyschlenniks left the *Zaria* to summer in the New Siberian Islands, and on May 27th, Baron Toll, Dr. Seeberg, the astronomer, and two sailors, with dogs and sledges, departed for Bennett Island, which has never been explored, and where only members of the *Jeannette* party landed. The *Zaria* got out of the ice July 1, but the disquieting news was received that owing to the condition of the ice and lack of coal she had been unable to take off either of the summering parties. The *Zaria* put into the mouth of the Lena August 26, and was met by the supply steamer *Lena*, August 30. The *Zaria* was laid up in a sheltered berth for the winter, and her party arrived at Irkutsk, September 30. A relief expedition under von Brusnew was to start in search of Baron Toll early in January, 1903. It was hoped, however, that he and Dr. Birula would be able to get to Irkutsk before the winter, or, at any rate, that the two parties would meet. The expedition has made many meteorological observations and has surveyed and mapped land hitherto unsurveyed; and added much information to the comparatively little known districts of the New Siberian archipelago. The main object of the expedition, however, the location of Sannikoff Land, has not yet been accomplished.

The Magnetic Arc Measurements.—During the summer of 1902 the magnetic arc was finished in Spitzbergen by the completion of the work of the Swedes who had left in 1901 two stations undone. The Swedes started for Spitzbergen July 26 on the steamer *Laura*, under the leadership of Dr. Rubin to take observations from Northeast Island to the most northern point of the Seven Islands, and returned September 14 to Tromsö. Although hindered by bad weather, they completed their triangulation of the degree that fell to their share. By the observations of the Russians and the Swedes, Spitzbergen has now become a fairly well-known country, and, indeed, topographical maps of the regions are promised that will bear comparison with similar maps of regions known for thousands of years. Careful examinations of the geological conditions—particularly observations of the movements of the inland ice—have been made, and the results have been published.

Captain Bernier, the Canadian who announced, in 1900, his plans for drifting across the Pole after the manner of Nansen, has obtained £20,000 of the £30,000 he needs for his expedition. His project has become more elaborate since he made public his original ideas. He means to avail himself of the latest devices in the way of equipment, including an apparatus for wireless telegraphing to civilization. He means to drift from Bering Strait as near the Pole as the current that sets

across the Arctic Ocean will carry him, and then to make a sledge journey from the likeliest point reached by the ship to the Pole itself. His ship, which is to be somewhat similar to the *Fram*, had not been built at the end of 1902.

Captain Warneck, the Russian, who, on the steamer *Pakltousov*, made a journey in 1901 from Alexandrovsk to Novaya Zemlya through the Kara Sea to Archangel, set forth on a new expedition in June, 1902. This expedition was fitted out under the direction of the Russian Hydrographical Society. Its members included Captains Serguéff and Morozoff, Lieutenants Yanoff, Brovtsyn, and Kozlaminoff, and Dr. Dalaloff. The purpose of the expedition was to explore and map carefully the unsurveyed portions of the Kara Sea and Murman coast and the eastern coast of the Yalmak Peninsula.

The Expedition to the North Magnetic Pole.—Among the Arctic expeditions announced for the future is that of Roald Amundsen, who has undertaken to add new and sound information to the conjectures of scientific men as to the present location of the northern magnetic pole. The location of the northern magnetic pole was fixed approximately by Sir John Ross in 1831, but its position has changed. Amundsen, who is a Norwegian, and was first officer of the Belgian expedition to the Antarctic regions in 1897-99, has published his plans for fixing the northern centre of magnetic force, for defining the area within which the dipping needle is perpendicular, for observing periods of high magnetic activity, and for furnishing in a certain measure a complement in the north to the magnetic work that forms so important a feature of the Antarctic expeditions now in the field. Captain Amundsen has bought a whaler called the *Gjoa* of only 48 tons, a craft 70 feet long by 20 feet beam, propelled by sail or by a petroleum motor at the rate of four knots an hour. He thoroughly tested this vessel, as well as his instruments in 1901, and he spent six months in her in the region between Novaya Zemlya and Spitzbergen, incidentally studying the polar currents. In June and July, 1902, he was in Wilhelmshavn having his instruments adjusted. In addition to an excellent equipment of meteorological and oceanographic instruments, he is fitted out with a fine set of instruments for the observation of magnetism. His plans, as announced by himself, are to leave Christiania in April, 1903; to put in at Godhavn, Greenland, for dogs, and to enter the North American waters by way of Lancaster Strait. His first base of observation is to be Leopold Harbor in North Somerset. Here he will establish an observatory. His absolute house is to be a snow house in winter, and in summer a tent whose top will consist of transparent white silk. During the summer of 1904 a series of sledge journeys will be organized to make observations in the largest possible area around the magnetic north pole. Captain Amundsen will, moreover, try to push his ship to King William Land, and to construct there a new observatory, whence he will send out small expeditions to cover the immediate region of the magnetic pole. In the third summer (1906) he will move his base to Hershel Island. It is his plan then to return to civilization by way of the Northwest Passage. He will have eight men on his expedition, including Lieutenant Godfried of the Danish navy, who will make geological observations.

The Russian Government is attempting to colonize Novaya Zemlya with Samoyedes. Game abounds in these islands, whereas it is becoming yearly scantier in the peninsula inhabited by this tribe. In the summer between 2000 and 3000 Samoyedes repair thither and become prosperous through the trapping of animals and of birds valuable for their feathers, which abound there. During the winter of 1900-01 one hundred Samoyedes remained on Novaya Zemlya, where three permanent stations have been established. Twice during the year a steamer from Archangel touches here.

The Danish Government, through the agency of the Karlsberg fund, was enabled to send out two small expeditions to East and West Greenland. Dr. C. Kruuse left Copenhagen August 15, 1901, in the steamer *Godthaab*, and arrived at Angmagsalik September 5. Although the principal object of his expedition was botanical research, Dr. Kruuse visited the large fiords of Angmagsalik and Sermilik, and made many ethnological observations. He was recalled September 2, 1902, and arrived at Copenhagen on the 28th of the month. The other expedition, led by Dr. Engell and Lieutenant Schjörring, went to Jakobshavn Fjord, which was reached June 19, 1902, after a seven weeks' voyage. The object of the expedition was to make surveys and a triangulation of this district and to observe the movements of the Jacobshavn glacier, which is the most rapid ice river known. Dr. Engell also surveyed the region lying south of Jakobshavn, which had not been adequately mapped. They returned to Copenhagen on October 22, having made the journey in five and a half weeks.

ARGENTINA, a South American republic lying between Chile and the southern Atlantic coast. The capital is Buenos Ayres.

Area, Population, etc.—The estimated area of the fourteen provinces and nine territories is 1,113,849 square miles. The population, according to the census of 1895, was 3,954,911 and, as officially estimated on December 31, 1900, 4,794,149. Estimates for

the several provinces on the latter date were: Buenos Ayres, 1,140,067 (exclusive of the city, which numbered 821,291); Santa Fé, 536,236; Córdoba, 419,072; Entre Rios, 343,684; Corrientes, 277,041; Tucumán, 249,433; Santiago, 180,612; Mendoza, 141,431; Salta, 131,938; Catamarca, 99,827; San Juan, 94,991; San Luis, 91,403; Rioja, 77,783; and Jujuy, 54,405. The estimated population of the city of Buenos Ayres on June 30, 1902, was 857,061.

The immigrants to Argentina numbered 111,083 in 1899, 117,036 in 1900, and 125,-951 in 1901. Of the last number 58,314 were Italians, 21,788 French, and 18,066 Spaniards. The adult males numbered 56,811 and the adult females 18,672; 35,824 came by way of Montevideo. Of the total 42,747 were sent at public expense to their respective destinations; over half of these settled in the provinces of Buenos Ayres and Santa Fé. In 1901 an increase was noted in the arrivals of Polish Jews and Roumanians. The excess of immigrants over emigrants in 1901 was about 48,000. Primary instruction is free, secular, and nominally compulsory. The reported number of primary schools in 1899 was 4291, with an enrollment of 427,331 pupils. There are provisions for secondary and higher education.

Government.—The chief executive authority is vested in a president, who is elected for a term of six years, and appoints a responsible ministry. The president in 1902 was Señor Julio A. Roca, who assumed office October 12, 1898.

The legislative power devolves upon a congress of two houses, the senate and the house of deputies. Except in matters affecting the republic as a whole, the states are autonomous, having their own elected legislatures and governors.

The regular army numbers about 8600 officers and men, the effective army 29,500, and the national guard nearly 472,000. The Argentine navy is comparatively strong; besides marines the naval complement comprises about 8400 men. In the spring of 1902 the Argentine and Chilian governments concluded a protocol, one article of which provided for the equalization of their respective armaments. See CHILE.

Finance.—The monetary unit is the peso, which has a fixed gold value of 96.5 cents; the paper peso, however, is current at 44 per cent. of its face value. The most important sources of revenue are import duties and excise, while interest on the public debt is the largest item of expenditure. In 1901 the total customs duties amounted to 38,130,251 pesos gold and 138,615 pesos paper, of which 32,188,032 pesos gold were import duties. Revenue and expenditure are stated as follows, the figures for 1902 and 1903 being estimates:

	1899	1900	1901	1902	1903
REVENUE.					
Pesos, gold	45,676,189	36,632,346	38,244,638	40,013,347	40,111,339
Pesos, paper	61,419,990	63,962,000	62,341,306	64,290,000	61,820,000
EXPENDITURE.					
Pesos, gold	30,860,817	23,819,979	23,835,847	32,438,189	29,496,172
Pesos, paper	103,887,458	94,271,310	91,160,225	96,198,813	95,206,218

According to President Roca's message to the congress in May, 1902, the apparent foreign debt at the end of 1901 was 386,451,295 pesos gold, but if certain amounts that do not properly constitute a debt are deducted the actual foreign debt stood at about 300,000,000 pesos gold. In addition, however, the government owed European bankers £2,558,475. The consolidated internal debt at the end of 1901 amounted to 17,863,000 pesos gold and 83,610,983 pesos paper.

Industries and Commerce.—As a producer of pastoral and a limited number of agricultural commodities—wheat, corn, and flax—Argentina is one of the most important countries in the world. The following official figures for crop areas and production are based partly on actual returns and partly on estimates. (The hectare equals 2471 acres, and the metric ton 2204.6 pounds.)

	Wheat.		Corn.		Linseed.	
	Hectares.	Tons.	Hectares.	Tons.	Hectares.	Tons.
1899-1900	3,167,283	2,800,000	1,244,182	1,800,000	355,329	250,000
1900-01	3,307,749	1,964,437	.....	.....	607,352	389,951
1901-02	3,221,066	1,534,405	1,405,806	2,134,165	782,880	366,000

The areas for 1902-03 were estimated at 3,254,641 hectares for wheat, and 955,873 hectares for linseed. Alfalfa is an important crop. In 1901-02 the area under sugar-cane was 67,218 hectares; vines, 45,533 hectares; peanuts, 23,765 hectares; and tobacco, 12,696 hectares. Sugar produced in 1901 amounted to 163,695 tons, and wine (largely in Mendoza), 1,844,196 hectolitres (the hectolitre equals 26.417 gallons). In 1902 there were under cultivation 17,174,250 acres, as compared with 7,478,708 acres in

1880. Large areas of public lands in the territories may be purchased or rented from the government. These, as officially stated in 1902, are as follows: Santa Cruz, 61,626,144 acres; Chubut, 55,687,983; Rio Negro, 37,266,057; Chaco, 32,182,861; Formosa, 21,430,165; Neuquen, 15,249,923; Pampa, 7,718,261; Tierra del Fuego, 4,840,418; Misiones, 1,956,240; total, 237,788,343 acres. The price an acre ranges from 16 to 40 cents. In 1902 there were probably about 30,000,000 cattle in Argentina, and between 110,000,000 and 120,000,000 sheep. Reports of unfavorable economic conditions in Argentina were current in 1902. Foreign capital, which is largely English, was said to have suffered severely.

The gold values of general imports and exports, exclusive of specie, have been in pesos as follows:

	1898	1899	1900	1901
Imports, dutiable	93,988,545	102,080,738	96,502,452	95,252,275
Imports, free	13,440,355	14,769,933	16,982,617	18,707,474
Total	107,428,900	116,850,671	113,485,069	113,959,749
Exports, dutiable	71,472,647	100,868,723	56,169,377	74,373,521
Exports, free	62,356,811	84,049,108	98,431,035	93,342,581
Total	133,829,458	184,917,831	154,600,412	167,716,102

The gold values of the foreign commerce by countries of greatest trade importance have been reported in pesos as follows:

	Imports from		Exports to	
	1900	1901	1900	1901
Great Britain	38,682,753	36,460,808	23,890,686	29,920,759
Germany	16,635,613	16,724,549	20,070,133	21,479,883
United States	13,438,529	15,533,639	6,882,763	9,296,454
Italy	14,924,498	14,736,103	4,304,154	4,318,950
France	10,897,866	9,969,541	19,007,960	28,637,121
Belgium	8,430,880	8,688,657	17,980,885	13,457,731
Brazil	3,741,877	4,386,047	6,185,507	9,702,488
Spain	3,691,998	3,912,536	.....	2,131,713

The leading imports are textiles and wearing apparel (37,597,847 pesos in 1900) and iron and steel goods (19,054,051 pesos in 1900). The principal exports reported for the calendar year 1901 include the following, the unit of quantity being the metric ton of 2204.6 pounds, and the unit of value the peso, worth 96.5 cents. Wheat, 904,269 tons (1,929,676 in 1900), valued at 26,240,755 pesos; wheat, flour, and bran, 160,396 tons, 4,165,726 pesos; corn, 1,112,290 tons (713,248 in 1900), 18,887,397 pesos; wool, 228,358 tons (100,913 in 1900), 44,666,483 pesos; linseed, 338,828 tons (223,257 in 1900), 16,515,263 pesos; hay, 95,120 tons (102,836 in 1900); sheepskins, 33,659 tons, 7,339,811 pesos; tallow, 25,744 tons, 3,902,909 pesos; ox-hides 3,504,068 in number (3,359,463 in 1900), 14,130,294 pesos, including the value of 261,360 horsehides; frozen beef 44,904 tons (24,590 in 1900), 4,490,447 pesos; frozen mutton, 63,013 tons (56,412 in 1900); jerked beef, 24,296 tons (16,449 in 1900), 2,879,455 pesos; butter, 3,322,391 pounds (2,322,663 in 1900); quebracho, 184,654 tons, 2,440,199 pesos; and 119,189 cattle and 44,550 other live stock. The foreign shipping entered in 1900 aggregated 6,193,783 tons.

According to the *Revista Mensual*, of Buenos Ayres, there entered the ports of the republic in 1901 51,284 vessels with an aggregate gross tonnage of 12,629,329, and cleared 51,422 vessels aggregating 13,283,272 tons.

Communications.—In May, 1902, President Roca in his message to the congress stated that there were 17,663 kilometres (10,975 miles) of railway in Argentina. The government lines comprise only about 2000 kilometres, with a capital at the end of 1901 of about 54,959,000 pesos, which in that year realized an interest of 1.15 per cent.; the private lines represent a capital of over 486,616,000 pesos, which showed an interest return in 1901 of 4.29 per cent. The government has sanctioned the construction of a railway from Jujuy, the northern terminal of the Argentine system, to La Quiaca on the Bolivian frontier, 291 kilometres distant. The line is to be open for traffic in 1904. A continuation of this railway is projected by the Bolivian government. In April, 1902, it was reported that the government had accepted a tender of the Creusot Company to build a harbor at Rosario for 53,000,000 francs ($10,229,008).

Labor Troubles.—In November, 1902, a general strike, declared by the labor unions, took place at Buenos Ayres, and for a time business was practically sus-

pended, resulting in heavy losses, especially to shippers. The unions demanded complete recognition from the employers and insisted that only union men be employed. To force submission to the union demands, the stevedores gave notice that after November 1 they would handle no packages exceeding a certain weight. For this the trade was unprepared and though a four days' respite was granted to the shippers, most of the goods awaiting shipment had to be repacked at a great loss. As soon as this strike was settled another was ordered, including a number of trades, cartmen and even bakers. The large meat-freezing plants at Buenos Ayres appealed to the government for aid; the threatened spoiling of large quantities of meat would not only result in great financial loss, but would be a menace to the public health. Riots ensued and the strike was not broken until the government ordered out the troops and declared the city and the provinces of Buenos Ayres and Santa Fé in a state of siege. The strikes appear to have been in some degree fomented by anarchistic agitators, some of whom were expelled from the country.

The Welsh Colony.—Discontent among the Welsh colonists in the Chubut Valley resulted in 1902 in an effort to transport about 500 of them to the Canadian Northwest Territories, where large tracts of land had been offered them. The colony, whose centre of population is Trelew, about 25 miles from the mouth of the Chubut River, was founded in 1866. Trelew is connected by a railway 44 miles long with Puerto Madryn, on Bahia Negra, and steamers of the Hamburg-American Company afford communication with the outside world. The colony, with a reported population of about 3800, is said to cover an area of 250,000 hectares. Authorities are in conflict concerning the character of the country and consequently, in some degree, the justification of the settlers in asking for deportation. According to a statement based on a report of a Canadian agent who visited the settlement, the district is "a sterile, rainless tract, without trees or rich soil," while Señor M. G. Mérou, Argentine minister at Washington, says that "at present (March, 1902) Chubut is enjoying prosperity" and he speaks of "the magnificent regions of the southern part of the Argentine Republic." The mean temperature of Chubut is 56.2° F., or 70° in January and 42.4° in July. It is certain that of late years the colony has suffered severely from floods, especially those of July, 1899. But the discontent of the Welsh seems due largely to the interference of the Argentine government in their local administration and to the law of compulsory military service. Early in 1902 a deputation of the colonists, which, according to Señor Mérou, was repudiated by a large majority of the Chubut inhabitants, went to London, seeking aid from the British government for transportation to Canada and for establishment there. Mr. Joseph Chamberlain, the British colonial secretary, ruled that, while imperial aid might be given to prospective settlers of a crown colony, such assistance could not be granted to persons going to a self-governing dependency. Some of the Welsh, however, succeeded in going to Canada, where they established the Llewelyn colony at Saltcoats, Assiniboia. At the end of 1902 it appeared from an official Canadian report that remarkable progress had been made, though some poverty and a good deal of hardship were inevitable in the circumstances. The settlers had accomplished more than had seemed possible, and it appeared that they would probably get on well in their new home.

Some friction with Great Britain occurred in 1902 over the apparent indisposition of the Argentine authorities to investigate properly the murder of a Mr. Barnett, a British subject, which was committed on April 26, by the son of a police official at Zuviria. Finally, however, the murderer was apprehended and in November was sentenced to eight years' imprisonment. For Argentina's relations with Chile and the boundary award, see CHILE.

ARIZONA, a southwestern territory of the United States, has an area of 112,920 square miles. The capital is Phœnix. Arizona was organized as a territory February 24, 1863. The population in 1900 was 122,212, while in June, 1902, as estimated by the government actuary, it was 132,000. The largest city is Tucson, with a population in 1900 of 7531.

Finance.—The receipts of the treasury for the fiscal year ending June 30, 1901, were $385,317.91 and the expenditures were $373,436.66. The balance on hand July 1, 1901, was $108,180.19. The receipts during the year ending June 30, 1902, were $514,940.65; the expenditures were $479,167.22, leaving a balance in the treasury June 30, 1902, of $143,953.62. The total valuation of property in the territory, as returned by the assessors in 1902, was $39,083,177.57, an increase over 1901 of $229,346.20. The tax rate for 1902 was $1.137 per $100 of valuation, as against $0.85 in 1901. The total bonded debt December 31, 1902, was $2,610,000, from which must be deducted county and city bonds amounting to $1,634,027.57, leaving the net bonded debt of the territory $975,972.43. The floating debt was $119,839.02, making the total territorial debt $1,095,811.45.

Industries and Agriculture.—Mining is the principal industry of the territory, and in 1902 there were 1641 patented mines valued for taxation at $1,867,825.08—a figure

much below their actual value and $2,915,648.23 less than the valuation in 1901. Improvements on patented and unpatented mines were valued at $1,789,237.76. The principal metals mined in order of their importance are gold, silver, and copper. The production of copper decreased slightly on account of the decline in price of that metal. The production of gold greatly increased, as did also the quantity of silver mined, though the value of the total output of silver was but little increased. Extensive preparations were made to improve the abandoned silver mines of Tombstone. Three extensive copper-gold ledges were uncovered on February 5, 1902, at the Angell group of mines in central Arizona. About the same date an immense deposit of silver-copper ore was discovered in the Casey group, Chiricahua Mountains, southern Arizona. The Exposition mine, the Trilby Bell gold mine, and the mines of the San Domingo group, eight miles east of Wickersburg, with about forty claims and prospects, were sold on April 23 to New York capitalists for $1,000,000.

Stock raising, the second industry in importance in Arizona, has been greatly handicapped by the severe drought of the last five years. The assessor's rolls show a marked decrease in the number of live stock, especially cattle. This decrease was due to the difficulty of getting feed and water and even more to the high prices, which induced ranchers to dispose of every available animal. Following are the assessor's returns of live stock in Arizona for 1902: Horses, 37,892, valued at $722,972.80; cattle, 256,122, $2,726,969; sheep, 367,524, $735,048. The decrease in value of horses, cattle, and sheep since 1901 was $461,090.

Arizona contains about 10,000,000 acres of irrigable land, of which about 1,000,000 acres have been partly or wholly reclaimed. The federal irrigation law is of vital importance to the territory. Plans were made to construct a huge reservoir at the Tonto Basin site on the Salt River, near Phœnix. By building a wall of masonry about 200 feet long, the largest artificial lake in the world will be formed. Reservoir sites were surveyed at San Carlos and The Buttes on the Gila River. Great interest was shown in the development of artesian wells. Many wells were put down in the San Simon, Gila, San Pedro, and Santa Cruz valleys. The wells are 300 to 400 feet deep and cased with two-inch pipe. One well is sufficient to irrigate from 25 to 40 acres, according to kind of soil and crop. Probably the most valuable crop in Arizona is alfalfa. Vegetables and small fruits thrive well. The Eastern Sugar Company caused experiments in sugar-beet culture to be carried out in Arizona during 1902 with very satisfactory results both as to quantity and quality of beets grown. Experiments in the culture of the date palm indicate that this useful fruit can be grown profitably in Arizona.

Forests and Lumber.—In the northern part of Arizona are large pine forests covering an almost unbroken area of 10,000 square miles. The manufacture of lumber for the fiscal year ending June 30, 1902, was more than 23,000,000 feet. The making of boxes was the most important branch of the wood manufacturing industry. A number of forest reserves were established during the year, and efforts were made to re-forest denuded tracts, to extend tree planting, and to establish a scientific system of forestry.

Communications.—Railway building during 1902 was more active than ever before in the history of the territory. The El Paso and Southwestern Railway was completed from El Paso to Bisbee, causing passenger and freight rates to be materially lowered by its competition. Improvements and new construction were extensive on all lines. There were 1,052.11 miles of railroad in the territory in 1902, valued for taxation at $4,943,386. All roads report heavy gains in freight business during the year.

Education.—The territory has an excellent educational system, extending from the common schools up to the normal colleges and the university. A considerable increase in the attendance was reported for the year. The total number of teachers employed in 1902 was 457, and the total enrollment 25,259, as compared with 23,435 in 1901.

Needs of the Territory.—The subject of statehood was the all-absorbing question throughout 1902. The people of Arizona believe that they have met all the requirements for admission into the Union although the population of the territory is less than two-thirds the population required in a single congressional district, and the total value of all property in the territory is less than that of Yonkers, N. Y. A much more obvious need of the territory is the construction of irrigation systems under the provisions of the federal law in order to reclaim the desert and make it possible to support a population large enough to make the demand for admission into the Union effective. Capital is needed in all lines of industry to exploit more fully the resources of this vast region. Forceful measures on the part of the national government are needed to conserve the forest areas, and extend forest culture to the non-forest bearing regions.

Political.—Benjamin Daniels, a Democrat, and formerly a member of the regiment

of Rough Riders, was in January, 1902, appointed by President Roosevelt United States marshal of the territory. Governor Murphy, in April, announced his intention of resigning. Alexander O. Brodie, lieutenant colonel of Rough Riders under Roosevelt, was announced as his successor, having been named by the President some time previously. His installation occurred in July. Governor Brodie is fully conversant with the affairs of the territory. He served with distinction in the war with the Apaches and in Washington in its territorial days. From 1878 to 1882 he managed a cattle ranch in Kansas, and for the next five years was engaged in mining in Dakota and Arizona.

Territorial Officers, 1902.—Governor, Alexander O. Brodie; secretary, Isaac T. Stoddard; treasurer, Isaac M. Christy; auditor and comptroller, W. F. Nichols; attorney-general, Edmund W. Wells; superintendent of public instruction, Nelson G. Layton; adjutant-general, B. W. Leavell—all Republicans. Supreme Court: Chief justice, Edward Kent; associate justices, George R. Davis, Fletcher M. Doan, and Richard E. Sloan.

ARKANSAS, a south central State of the United States, has an area of 53,228 square miles. The capital is Little Rock. Arkansas was organized as a territory March 2, 1819, and admitted as a State June 15, 1836. The population in 1900 was 1,311,564, while in June, 1902, as estimated by the government actuary, it was 1,348,000. The populations of the largest cities in 1900 were: Little Rock, 38,307; Fort Smith, 11,587; Pine Bluff, 11,496.

Agriculture and Industries.—The various industries of the State were more than ordinarily prosperous during 1902. This condition was the more marked because of the contrast with the ill-favored season of 1901. The general drought that prevailed throughout the southwest in July and August, 1901, was felt severely in Arkansas, and as a result the cotton crop, which, in general nearly equals in value all the other crops of the State, was very poor—the Department of Agriculture estimating it at 51 per cent. of a full crop. The corn crop was even more severely injured, the average for the State being but 8.1 bushels per acre. In 1902, however, the cotton crop was 4 per cent. greater than the ten-year average, and corn, as reported, was also above the average—2,378,171 acres yielding 50,655,042 bushels. The oat yield was 5,048,400 bushels, and wheat, 2,245,889 bushels. Apples were placed at 63 per cent., against an average of 49 per cent. In the northwestern part of the State fruit raising was undertaken in 1902 on a larger scale than ever before. Conditions in the mining region in the northern part of the State were reported as being most favorable. The output of the coal mines was increased to meet the unusual demand. Important phosphate deposits are being developed in the north-central part of the State. Two railroads were pushed into the field, one up the White River from Batesville, the other southeast from Harrison.

Railroads.—The total number of miles of railroads operating in the State of Arkansas during 1901 was 3,802.4. The total income from passenger business was $2,175,738.08. The total freight earnings were $4,296,858.56. The total gross earnings, including earnings from other sources, were $6,744,588.12. According to the report of the Railway Commission of Arkansas, the operating expenses for the year 1901 were $7,669,705.06, leaving a net deficit from operations of $925,116.94. The fact that the lines operating in Arkansas made large profits on the total business of the entire lines in and out of the State would indicate that these figures are not to be relied upon. The total number of tons of freight shipped by rail in Arkansas for 1900 was 3,180,936 tons. For 1901 the total was 4,325,900 tons, a net increase of 1,144,964 tons.

Negro Convicts.—Early in May, 1902, Governor Davis issued a statement requiring all applications for pardons for negro convicts to be accompanied by paid transportation to Boston or some other point in New England. Representative Toney, of Pine Bluff, bought a ticket for a negro forger and then applied for a pardon, which the governor declined to grant unless Toney would procure the services of an officer who would take the man to Boston and remain there until the negro established his citizenship.

Political.—James K. Jones, who, as chairman of the Democratic National Committee in 1896 and 1900, managed Mr. Bryan's two campaigns for the Presidency, was defeated in his campaign for re-election to the United States Senate in the spring of 1902 by ex-Governor James P. Clarke. In Arkansas, the voters manifest their choice of a senator at the primary elections, the State legislature afterwards ratifying their decision. In this way Arkansas virtually elects her senators by popular vote. Senator Jones is a close personal friend of Mr. Bryan, and has often expressed his antipathy to the trusts. His alleged connection, however, with the Round Cotton Bale trust, a monopoly that has caused some bad feeling in the South, contributed in some degree to his defeat.

Conventions and Platforms.—The Democratic State convention was held at Little Rock on June 11, 1902. The Kansas City platform of 1896 was endorsed in a

general way; the Dingley tariff was protested against as encouraging monopolies; an increase of power was urged for the Interstate Commerce Commission; authority similar to that given to the Commission was asked for a State commission; the Panama route for the Isthmian canal was advocated; emphasis was placed on the necessity for proper representation of the State at the Louisiana Purchase Exposition; liberal support for public schools was insisted upon, also the taxation of public franchises. The convention endorsed the administration of Governor Davis. The vote of the convention in favor of ex-Governor Clarke to succeed James K. Jones in the United States Senate was 420 to 70. Governor Jeff Davis, who carried 70 out of 75 counties in the primaries, was unanimously renominated, the name of Col. E. W. Rector of Hot Springs having been withdrawn. Governor Davis, in his speech of acceptance, announced himself as a candidate for the United States Senate to succeed James H. Berry, when the term of the latter expires in 1905.

Owing to dissension in the ranks of the Republican party in Arkansas two separate Republican conventions were held at Little Rock on June 25, 1902. The Clayton faction adopted a platform that reaffirmed the Republican national platform of 1900; advocated Cuban reciprocity and an Isthmian canal; condemned the formation of trusts; called for a liberal appropriation for the Arkansas exhibit at the St. Louis world's fair; denounced lynching and every other form of lawlessness; urged the people of Arkansas to support law and order; and indorsed the Administration in the following words: "We endorse the administration of President Roosevelt and pledge him support in the continuance of our national prosperity and the maintenance at home and abroad of the nation's honor. Should he be the Republican standard bearer in 1904, we pledge an increase of Republican votes from Arkansas." The anti-Clayton Republicans also endorsed the President, and in a general way covered ground similar to that taken by the other faction.

Elections.—At the regular biennial State election held September 1, 1902, a full Democratic ticket was elected. For governor, Davis (Dem.) received 77,354 votes, and Myers (Rep.) 29,251. The State legislature for 1903 comprises 133 Democrats and 2 Republicans.

Other Events.—The heirs of Villiot, a Frenchman, who, his descendants hold, received from Louis XVI. the grant of a square league of land now used as a government reservation at Hot Springs, filed suit in September, 1902, in the federal court at Little Rock, to recover the property. Lumber yards and dry kilns were burned at Kitson on January 16, 1902, resulting in the destruction of 4,000,000 feet of lumber. A terrific snow and sleet storm visited Little Rock in January, lasting several days and doing nearly half-a-million dollars' damage in the business section of that city. Seven men were killed and twelve seriously injured in February by the falling of a boulder upon a train on the Choctaw, Oklahoma and Gulf Railroad, thirty miles from Little Rock.

State Officers.—For 1902: Governor, Jefferson Davis; lieutenant-governor, Robert L. Lawrence; secretary of state, John W. Crockett; treasurer, Thomas E. Little; auditor, T. C. Monroe; attorney-general, George W. Murphy; superintendent of education, J. J. Doyne, October, 1902; commissioner of agriculture, Frank Hill, October, 1902; commissioner of insurance and public lands, John W. Colquitt, October, 1902—all Democrats. For 1903: Governor, Jefferson Davis (elected for 2 years, term ending January, 1905); lieutenant-governor (vacancy); secretary of state, John W. Crockett; treasurer, H. C. Tipton; auditor, T. C. Monroe; attorney-general, George W. Murphy; superintendent of education, J. H. Hineman, until October, 1904; commissioner of agriculture, H. T. Bradford, until October, 1904; commissioner of State lands, F. E. Conway, until October, 1904—all Democrats. Supreme Court in 1902 and 1903—Chief justice, Henry G. Bunn; associate justices, Burrill B. Battle, Simon P. Hughes, Carroll D. Wood, and James E. Riddick—all Democrats. For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

ARMENIA and Kurdistan, Turkish territory in eastern Asia Minor, comprising the vilayets of Erzerum, Mamuret-ul-Aziz (Kharput), Diarbekir, Bitlis, and Van, has an estimated area of 72,491 square miles and a population variously estimated at from 2,500,000 to 5,000,000—probably the latter figure is considerably too large. The Armenian inhabitants are outnumbered by the Moslems, Kurds, and Turks; in Transcaucasia (Russian) there are about 1,000,000 Armenians and others in Persia, European Turkey, and elsewhere, so that the Armenian race probably numbers upwards of two and a half millions. The Armenians are Gregorian Christians. Persecution and outrage, perpetrated by the Kurds and Turks at the connivance of the Sultan, continued in 1902, but since the great atrocities of 1894 and 1895 the policy of the oppressor has been to supplant wholesale butchery, which might attract too much disagreeable attention in foreign chancelleries, with "massacre in detail." Thus Moslem outrage persists steadily without arousing western peoples to the point of formidable remonstrance. At the beginning of 1902 Kurdish outbreaks took

place in the vilayets of Erzerum, Diarbekir, and Bitlis. In addition to the general hostility of the Kurdish soldiery the Armenians were suffering from excessive taxation imposed by the Turkish government. These conditions have led to a large emigration, which has become a source of uneasiness to many wealthy Turks to whom a large part of the Armenian land belongs. Indeed in March, 1902, it was stated that the Armenians in the district of Erzerum, finding the persecution intolerable, had determined to emigrate to Russia *en masse*. On August 2, 1902, the Armenian patriarch tendered his resignation on the ground that no satisfactory results had come from his protests against the exceptional measures taken by the Porte with regard to his co-religionists. The ministry of public worship returned the resignation, assuring the patriarch that an investigating commission would be appointed, and on August 31 an iradé was promulgated abolishing certain restrictions prejudicial to Armenian prosperity. Nevertheless in the summer and fall of 1902 there were fears of another general massacre. British, French, and Russian consular agents were sent to Sassun, but apparently their presence had little effect on conditions there, which in October practically amounted to a state of siege. Turkish troops were stationed throughout the Mush Valley and the usual outrages were taking place. Already the United States government had advised its consul at Erzerum to use every means possible in the protection of American interests at Mush. It is not exactly clear what are American interests at Mush, but it is certain that every Armenian disaster has a direct effect in the United States; for the Armenians there send funds to their oppressed brethren at home in proportion to the latter's misfortune, while after each massacre some of the survivors emigrate to America.

An Armenian congress, attended by prominent people from various countries, was held at Brussels in July, 1902. It formally expressed the hope that the Powers would compel the Porte to conform to article sixty-one of the Treaty of Berlin, which guarantees certain rights and liberties to the Armenians but which has always been disregarded, and to carry out the reforms promised in 1895. The congress proposed that the Powers insist on the appointment of a governor of European nationality and the creation of a local non-Turkish militia. An international permanent committee was formed. Much pro-Armenian sentiment was aroused, but in some quarters it was held that the continued agitation in behalf of the Armenians would probably have no effect upon the Ottoman authorities and that a better way to mitigate existing evils would be a concerted effort for general reforms throughout all the Turkish dominions.

Coincident with the growth of German influence in Mesopotamia is that of Russian in Armenia and other parts of northern and eastern Asia Minor. Russia has the exclusive right to build and operate all railways in the vilayets of Erzerum and Trebizond and the promise that only Turks will build railways in the vilayet of Sivas. Meanwhile Russian roads are being extended from the Caucasus.

ARMIES. See articles on the various countries; also MANŒUVRES, MILITARY AND NAVAL.

ARRHENIUS, SVANTE, Swedish astronomer. See ASTRONOMICAL PROGRESS.

ARSENIC. The manufacture of arsenical compounds is a new industry in this country. For several years a smelting company in Seattle, Wash., has conducted experiments for the purpose of utilizing its waste arsenical ores, and in 1901 began the manufacture of arsenic upon a commercial scale. The output in that year was 300 short tons, but it increased in 1902, according to *The Engineering and Mining Journal*, to 2400 tons, valued at $144,000. Previous to 1901 the markets of the United States were supplied entirely by foreign material, largely produced in Cornwall and Devon, England, and at Freiberg, Germany. As the domestic resources in arsenical ores are very extensive, it is probable that they will soon be utilized to such an extent as to supply the requirement of this country in the various products of arsenic.

ART STUDENTS' LEAGUE of New York was founded in 1875 for the purpose of organizing and conducting classes in painting, drawing, modeling, and composition. Membership, about 500; number of students, 1000. At the annual meeting held in April, 1902, four prizes of $50 each were awarded, one for the encouragement of the practical side of art, one for best composition in the illustration classes, one for drawing in the antique, and one for progress in portrait study. Advisory director, John La Farge; president, Samuel T. Shaw; secretary, Florence Choats. Headquarters, 215 West Fifty-seventh Street, New York City.

ASBESTOS. See MINERAL PRODUCTION.

ASHANTI. See GOLD COAST.

ASHMEAD-BARTLETT, Sir ELLIS, British statesman, died in London, January 18, 1902. He was born in Brooklyn, N. Y., in 1849, but was sent to England at an early age to be educated. Having graduated with first-class honors at Christ

Church, Oxford, in 1872, he remained in England to enter political life, and was called to the bar in 1877. He renounced distinctively American ideas, became an ardent supporter of Lord Beaconsfield, and by his strong Tory views attracted considerable attention. Having been elected to Parliament, he defended the imperialist policy of which Lord Beaconsfield was the chief promoter and consistently maintained that attitude during the remainder of his life. He sat in Parliament from 1880 to 1885 and in 1886, 1892, and 1895; and was civil lord of the admiralty in 1885 and from 1886 to 1892. During the war in South Africa he served there in a subordinate capacity. A most notable phase of his political career was his violent opposition to the policy of the late Charles Stewart Parnell, the Irish home-rule leader, whom he attacked in his journal, *England and the Union*. He was knighted in 1892. In 1897 he published *The Battlefields of Thessaly*.

ASIA. See articles on the various countries of Asia; with reference particularly to international relations, see ARABIA, CHINESE EMPIRE, COREA, JAPAN, MANCHURIA, PERSIA, SIAM, and TURKEY (paragraph Bagdad Railway).

ASIA MINOR. See ARCHÆOLOGY (paragraph Asia Minor) and TURKEY.

ASPHALTUM. See MINERAL PRODUCTION.

ASSEMBLY, GENERAL. See PRESBYTERIAN CHURCH IN THE UNITED STATES OF AMERICA and PRESBYTERIAN CHURCH IN THE UNITED STATES (SOUTH).

ASSISE, Don FRANCISCO D'. See d'Assise, Don Francisco.

ASSOCIATE REFORMED SYNOD OF THE SOUTH, a Presbyterian body, the only independent division of Associate Reformed Presbyterians. It includes 151 churches, with 104 ordained ministers and 11,903 communicants, having congregations in all of the Southern States, except Louisiana, though its greatest strength is in North and South Carolina. The leading educational institutions of the denomination, Erskine College and Erskine Theological Seminary, and Due West Female College, are situated at Due West, S. C.; and there are several preparatory schools in North Carolina, South Carolina, and Georgia. Foreign missionary work is conducted in Mexico, in the states of Tamaulipas, Vera Cruz, and San Luis Potosí. The field is organized into 15 stations, and 19 missionaries are employed. The efforts of the denomination are being especially devoted to the Twentieth Century Fund of $60,000 for Erskine College and Due West Female College, the educational work in Mexico, and for home missions. The annual meeting of 1902 was held November 6-11, in Gastonia, N. C. At its next session (November 5-10, 1903) in Winnsboro, S. C., the synod will celebrate its centennial. Stated clerk, Rev. James Boyce, Due West, S. C.

ASSOCIATED PRESS, an organization for the collection and distribution of news, was first incorporated in Michigan, later in Illinois, and in 1900 in New York. The Associated Press has its own leased wires, which form a network across the continent from St. John, N. B., to Seattle, Wash., and San Diego, Cal., and from Duluth, Minn., to New Orleans, Galveston, and the City of Mexico. The total mileage of this leased wire system is approximately 13,400 miles for day wires and 18,900 miles for night wires. At the annual meeting held in New York City, September 18, 1902, the following directors were elected: Whitelaw Reid, New York *Tribune;* C. W. Knapp, St. Louis *Republic;* Victor F. Lawson, Chicago *Daily News;* Stephen O'Meara, Boston *Journal;* A. J. Barr, Pittsburg *Post;* H. W. Scott, Portland *Oregonian;* George Thompson, St. Paul *Dispatch;* W. L. McLean, Philadelphia *Evening Bulletin;* Clark Howell, Atlanta *Constitution;* H. Ridder, New York *Staatz Zeitung;* T. G. Rapier, New Orleans *Picayune;* Frank B. Noyes, Chicago *Record-Herald;* C. H. Grasty, Baltimore *Evening News;* W. D. Brickell, Columbus *Evening Dispatch;* M. H. DeYoung, San Francisco *Chronicle*. The directors subsequently elected Frank B. Noyes president and Melville E. Stone secretary and general manager.

ASSOCIATION OF AMERICAN UNIVERSITIES. See UNIVERSITIES, AMERICAN ASSOCIATION OF.

ASTOR LIBRARY. See NEW YORK PUBLIC LIBRARY.

ASTRONOMICAL PROGRESS DURING THE YEAR 1902. For 1902 there are no especially prominent advances in observational astronomy to record. Routine work of course went on regularly at the various observatories, but there were no brilliant new stars, like the one which in 1901 appeared suddenly in Perseus, and which is still visible. Nor did astronomers discover any remarkable naked-eye comets. On the other hand, several theoretical researches of far-reaching importance were published, and some of these are explained below. Especial attention has been given to the light-pressure theory of Svante Arrhenius, of Sweden, and to the researches of J. C. Kapteyn, of Holland, upon the nature of the stellar universe.

Statistical Study of the Stars.—During the last few years astronomers have given much attention to a method of sidereal investigation called by the foregoing name.

The fundamental idea of this method is to collect from every source the isolated facts that have become known about the stars, and to deduce from these, if possible, some new facts affecting the universe as a whole. The method, of course, is not new; it has always been the object of scientific men to proceed from individual observations to generalizations of importance. But the plan, as applied very recently, has resulted in something more definite than mere speculation, and very important light has been thrown on existing theories as to the structure of the universe. It may be said that the statistical method was first applied to the sky by the elder Herschel, who made what he called a series of "star-gauges" near the beginning of the last century. These were simply separate counts of the number of stars visible in the field of view of his telescope. He made about 3400 of these counts, and thus came into possession of valuable statistical knowledge as to the apparent density of stellar distribution. His son, Sir John Herschel, extended this work to the southern hemisphere, and the net result was a rough table of "stellar densities" for the whole sky, or, in other words, what may be called the "number of stars per square degree" in different parts of the sky. They found, of course, the greatest density in and near the galaxy, or milky way, and a gradual thinning out towards the galactic poles, or those points of the sky furthest from the milky way. Upon these star-gauges Herschel founded his well-known theory of the stellar universe, making it consist of a comparatively thin disc or ring of stars within which our solar system is itself situated. Thus, Herschel said, when we look out in any direction in the plane of the disc, we must be looking through the thickest part of the stars, and see them projected as a ring or band on the sky. Such a band must be very thickly studded with stars, and those parts of the sky at right angles to it should be comparatively star-poor.

Herschel's results have of course been replaced by far more accurate counts based on both visual and photographic observations, but his principal conclusions are still accepted in the main. The very latest discoveries in this connection are due principally to Kapteyn and Newcomb. Kapteyn has published his researches in three important memoirs entitled *On the Mean Parallax of Stars of Determined Proper Motion and Magnitude, On the Distribution of Cosmical Velocities,* and *On the Luminosity of the Fixed Stars.* These memoirs have been published by the Astronomical Laboratory of Groningen, Holland, and by the Scientific Section of the Royal Academy of Amsterdam. Newcomb's most recent discoveries and cosmical speculations were published in 1902 in the *Astronomical Journal,* Cambridge, Mass., under the title *Statistical Relations Among the Parallaxes and the Proper Motions of the Stars.* To make these researches plain, it is necessary to point out the meaning of the astronomical terms occurring in the foregoing titles. The parallax of a star is in a certain sense merely another name for the star's distance. But stellar distances are so vast that astronomers prefer not to use for them our ordinary linear units, such as the mile or kilometre. They prefer to speak of the parallax as an angle; and it is defined as the small angle that would be filled up by the radius of the earth's annual orbit about the sun if seen by a supposed observer at the star. Great as is the radius of that orbit (about 92 million miles) it is always very small in comparison with stellar distances; and the parallax angles of even the nearest stars are always less than a single second of arc. The other technical term "proper motion" is used by astronomers to designate the changes in a star's position on the sky, caused by actual motions in space. If we measure the exact place of a star on two widely separated dates, we usually find a slight change. These changes are uniformly progressive in character; and astronomers measure them as angles. In other words, the small angle by which a star changes its place on the sky in a year is called its annual proper motion.

The quantitative determination of stellar parallax is always a matter of the greatest difficulty, on account of the extreme minuteness of the angles to be measured. We have already stated that parallaxes are always less than a second of arc, and they are therefore always near the limit which separates the measurable from that which is still beyond human observational powers; so that astronomers have as yet determined the parallaxes of only a comparatively small number of the vast assemblage of stars in the sky. In selecting objects for parallactic study they have in the past been guided by certain rather vague rules. Stars have not been picked out at random to be tested for parallax, but certain indications of possible proximity have been given due weight in the selection. These indications are two in number: first, brightness of the star; second, large proper motion. It has been assumed with justice that, other things being equal, comparative brightness signifies comparative proximity. Furthermore, assuming the actual linear stellar motions in space to be probably equal or nearly so, it is legitimate to assume also that proper motions apparently large are really due to comparative proximity, since the same quantity of actual motion would seem larger or smaller according to whether the moving star is near us or far away. Now Kapteyn has reduced these

rather vague considerations into a tangible law that must be accepted as a good first approximation at least to the real facts of nature. Collecting together all the existing actual measures of parallax possessing sufficient reliability, he has submitted them to an elaborate discussion, and obtained a law expressing in mathematical form the probable relation between parallax, brightness, and proper motion. Measuring brightness by the usual astronomical scale of stellar magnitudes, we get from Kapteyn's law the following table showing the parallaxes of stars having various magnitudes and proper motions. These parallaxes are to be considered of course only as average values, not as the actual parallaxes of all the stars in question; and, as we have already stated, parallax is simply the small angle filled up by the radius of the earth's orbit around the sun, as seen from the star.

TABLE OF AVERAGE STELLAR PARALLAXES (KAPTEYN).

MAGNITUDE OF STAR.	Proper Motion of Star.					
	0.02	0.05	0.10	0.20	0.50	1.0
5	0.005	0.008	0.017	0.029	0.058	0.099
7	.004	.007	.014	.024	.047	.081
9	.003	.006	.011	.020	.039	.066

The divergences of actual measured parallaxes from the average numbers in the table enabled Kapteyn to estimate the probability of any given star really having the tabular parallax. He found that it is always at least an even chance that the real parallax will fall between one-half and one and one-fourth times the tabular value. This is a surprisingly close agreement between the theoretical formula on which the table is based, and the actual observed facts of nature.

Distribution of Stellar Velocities.—Kapteyn's researches concerning the distribution of stellar velocities have not been put in quite as definite a form as those just described. The problem he undertakes to solve is this: "What proportion of the stars have velocities of motion equal to, double, treble, etc., one-half, one-third, etc., of the velocity of our sun in space?" Adopting as the unit of stellar linear motion in space the velocity with which our own sun is moving, the problem is to find comparative data for other stars. We have an approximate knowledge of the sun's velocity, and we also know approximately the point in the sky towards which the solar motion is directed; and, as astronomers now consider our sun to be simply a star like other stars, it becomes a proper subject for stellar statistical inquiry to obtain, if possible, similar knowledge applicable throughout space.

Kapteyn found it necessary to adopt certain assumptions about the stars. These are fundamental; without them no progress at all would be possible in the problem under consideration. The first of these assumptions is that the actual motion of any star is just as likely *a priori* to take place in any one direction as is any other. All directions of motion are equally probable. The second assumption is that whatever may be the law of stellar velocities, it is the same at different distances from the solar system. In other words, our system is not a centre of space; and the proceedings and motions of other stars are quite independent of their position with respect to us. Both these assumptions are extremely plausible, and investigators are quite justified in making them; but assumptions they are, and as such affect *pro tanto* any conclusions that may be reached. Some of these conclusions we shall now summarize in the form in which they have been put by Newcomb in his last paper, to which reference has already been made. Newcomb adopts 4.75 kilometres per second as the unit of sidereal velocities, this being the rate of motion that would traverse the distance from the earth to the sun in one year. The rate of solar motion in space is just four times this unit; stellar statistics as to other stars are shown as follows—the first figure representing velocity in units and the second figure the number of stars having this velocity: 1—36; 10—59; 20—1; 30—1; 40—1; 50—1; 60—1. These figures show that the total number of visible stars having velocities vastly superior to that of our sun must be extremely small.

Luminosity of the Stars.—In his study of this question, Kapteyn begins by forming a table showing how many stars there are of each stellar magnitude, or degree of luminosity. The reader will remember that astronomers divide all visible stars into classes according to brightness; the most brilliant ones are classed as first magnitude stars, and those just on the limit of visibility by the unaided eye are classed as sixth magnitude. Theoretically each star of any class gives two-fifths as much light as stars of the class next above it; and by means of this fractional ratio the classification is extended to include telescopic stars below magnitude 6, and therefore invisible to the naked eye. Fractional numbers are used to designate degrees of brilliancy intermediate between the various magnitudes: thus, magnitude 1.5 would

be intermediate between the first and second magnitudes. The following is Kapteyn's table:

Magnitudes.	Approximate Average Magnitude.	Number of Stars.	Magnitudes.	Approximate Average Magnitude.	Number of Stars.
Brighter than 1.5..	.....	18	5.5 to 6.5.....	6.1	4,944
1.5 to 2.5.....	2.1	51	6.5 to 7.5.....	7.1	15,370
2.5 to 3.5.....	3.1	145	7.5 to 8.5.....	8.1	45,530
3.5 to 4.5.....	4.1	466	8.5 to 9.5.....	9.1	153,880
4.5 to 5.5.....	5.1	1,508			

Having thus obtained information as to the number of stars of each magnitude, Kapteyn proceeds to use it in connection with his former table of average stellar parallaxes corresponding to various magnitudes and proper motions. He begins by defining and adopting an absolute unit of stellar magnitude; for the previous luminosity classification is merely conventional and arbitrary. In fact, it is not essentially different from the system in general use ever since the time of Hipparchus. Of course the apparent magnitude of a star depends on its distance from us. With a given absolute brilliancy, it will appear brighter or fainter according as to whether it is near us or far away. Kapteyn therefore defines the *absolute magnitude* of a star as the magnitude it would appear to have if placed at such a distance from us that its parallax would be one-tenth of a second of arc, or, in other words, at such a distance that the radius of our earth's annual orbit about the sun would fill an angle of exactly that size to a supposed observer at the star. Under this definition our sun, regarded as a star, is of the absolute magnitude 5.5.

With the help of these considerations Kapteyn is now able to form a table showing the number of stars of given absolute magnitude situated between given limits of parallax or distance from us. From this he is finally able to deduce another table exhibiting the average number of stars of each absolute magnitude contained in a given section of cosmic space. As an example of his final result, Kapteyn imagines a portion of space containing two million stars of the same absolute magnitude as our sun, and then gives the following figures for stars of various other absolute magnitudes that would be contained at the same time in the same region of space; the first figure represents the number of stars and the second figure the luminosity of each of them as compared with the sun: 1—100,000; 38—10,000; 1800—1000; 3600—100; 440,000—10; 2,000,000—1; 5,000,000—0.1; 7,500,000—0.01.

The most immediate result of an inspection of these figures is that our sun, regarded as a star, is not such a little one as many suppose. Of the probable total of 15,000,000 stars contained in this region of space, only about one million are intrinsically brighter than our sun, and about 14 million are fainter than the sun. And the number of luminaries very many thousand times brighter than our sun is surprisingly small. We may, of course, take this region of space as a satisfactory specimen or sample of space, as a whole, for Kapteyn's results are averages, and he uses a sample portion of space of this size simply to visualize and make plain the results he has obtained.

These results are extremely interesting and highly valuable, and for this reason we have explained them here in considerable detail; but it would be unfair to close an account of Kapteyn's researches without emphasizing again that the conclusions reached are based in part on assumptions and hypotheses, and are therefore reliable only so far as these can be accepted. Some of these assumptions we have already mentioned, and have pointed out their great plausibility; but in so doing we attach to the final conclusions also the characterization of great plausibility, and not the definite certainty usually ascribed to astronomical science. Furthermore, in addition to these assumptions, Kapteyn's results are doubtless affected somewhat by unreliability or insufficiency in his observational data. For instance, our knowledge of proper motions is not complete or altogether accurate in the case of the fainter stars, for these have not been observed long enough or with sufficient precision. Again, the number of measured parallaxes is very small, and even some of these are doubtless faulty. Still, as average results, Kapteyn's tables are reliable; they are far better than anything we have had before; and they will always stand as remarkable examples of most acute analysis applied to a problem of surpassing difficulty.

Variation of Latitude.—Astronomers continuing in 1902 their measurements of changes in terrestrial latitude, brought to light a new fact of far-reaching importance. Küstner of Berlin was the first to demonstrate (1888) that observatories do not maintain an absolutely invariable distance from the North Pole of the earth. It is easy to understand the astronomical importance of this discovery, when we remember that all observations, and theories based on observations, have always been treated on the supposition of absolute invariability as regards latitude. Conse-

quently it has become necessary to revise astronomical fundamentals throughout; and this revision is now in progress. Even ordinary geography needs modification. Many boundary lines are defined by treaty as being coincident with certain parallels of latitude; and if these are subject to changes, treaties and geographies will also need revision.

Obviously the first and most necessary step has been the organization of a careful and systematic observational study of the problem, to be followed later by theoretical investigations into the mechanical causes of the effects observed. Küstner's original announcement was of course at once followed by many series of observations undertaken at various observatories and detached stations. Much time passed before arrangements could be made for a really satisfactory observational campaign; but this has been finally accomplished by the so-called International Geodetic Association. This organization is composed of representatives of the civilized governments of the world, which have joined forces for a more complete attack on pending problems of geodesy. These include, of course, the mapping and charting of our planet's surface primarily; but maps and charts would be worthless if longitude and latitude lines were not marked upon them, and since latitude lines are now recognized as subject to change, it naturally became the province of the association to study their variations. For this purpose observing stations have been established in Japan, California, Maryland, and Sicily, girdling the earth with a chain of latitude observers. The distributing of these stations was chosen most carefully: they are all on a single parallel of latitude (or very near it), a condition favorable astronomically to high precision in the results; and they are so distributed in longitude as to divide the earth into four nearly equal quadrants. This last condition is of great importance; for it gives a criterion as to whether the changes of latitude are due to actual motions of the earth's pole. If that pole at any given instant be moving away from one observing station, it must at the same instant be approaching the station diametrically opposite in longitude. In other words, periods of extra large latitudes in any one station must occur simultaneously with corresponding periods of extra small latitudes in the opposite station, while the intermediate stations should for the time being occupy comparatively unvarying latitudes.

Such were the supposed facts, as anticipated; and up to 1902 there was no evidence of anything different having an actual physical existence. Nor is it to be expected that the minuter details of this phenomenon should reveal themselves easily or speedily. The entire variation, as observed, has never exceeded half a second of arc, a quantity corresponding to about 50 feet only on the earth's surface. And it is of course possible that almost the whole change may be such as had been anticipated, and only differs from what was expected by a very small portion.

Kimura, observer at the Japanese station, was the first to suspect the reality of small variations of latitude not due to actual motions of the pole; and his suspicions have been verified by the publication of results from all four stations. These have been discussed upon a uniform system by Albrecht at Berlin. He finds that there are times when a small but decided increase of latitude takes place at all four stations simultaneously, something that for the reasons stated above cannot be due to mere motion of our pole. If this discovery be credited to Kimura, it may perhaps be called the most important scientific discovery that has come out of Asia in modern times. No explanation has yet been offered as to the cause of this observation; but the problem of latitude variation is entangled inexplicably with the other problem of determining the so-called aberration of light. To "reduce" or compute our latitude observations we are compelled to assume that we are in possession of a correct theory as to the phenomena of aberration: and it is not improbable that these new observations will compel us to revise that theory, as well as re-determine the observational quantities that enter into the theoretical formulæ. The Kimura variation could be explained satisfactorily, and, indeed, be made to disappear, if we could find good theoretical grounds for applying at times a slightly varying "correction for aberration" to our latitude observations.

Light Pressure as a Cosmic Force.—Notwithstanding the immense progress of astronomy during the nineteenth century, many unsolved problems have been left to astronomers of the present day. An ingenious theory lately propounded by Svante Arrhenius, of Sweden, seems to give a ready explanation for many mysteries of the heavens that for generations have puzzled scientists. Among these may be mentioned: What are comets' tails composed of? and why do they always point away from the sun? What is the composition of the corona, the marvelous halo that at the time of a total eclipse is seen to surround the sun? and what the origin of the solar prominences? Again, what is the source of light by which the nebulæ shine? What the origin and structure of meteor swarms? and what the aurora borealis? A theory that will solve these and half a dozen minor problems is of the greatest interest to every one. To make the idea of Arrhenius thoroughly intelligible, it is necessary to refer to certain work of J. J. Thomson, of England. He finds that

the atom is not the smallest possible subdivision of matter, even though it happens that in a cubic centimetre of gas there are ordinarily 20 million, million, million (2 followed by nineteen ciphers) molecules of gas. Thomson, however, has shown that the smallest of these bodies, the hydrogen atom, is about a thousand times as large as the "corpuscle," or "ion," and he further has found that these ions, each bearing a charge of negative electricity, are discharged with high velocity:—(1) from the negative electrode in a Crookes tube (kathode rays); (2) from objects struck by kathode rays (Röntgen rays); (3) from hot bodies; (4) from cold bodies under the influence of ultra-violet light; (5) from the radio-active substance, radium. This work of Thomson's, together with Maxwell's electromagnetic theory of light, form the groundwork of the theory proposed by Arrhenius for the solution of so many interesting problems in cosmology.

(*a*) *Explanation of Comets' Tails.*—Instead of pointing toward the sun in obedience to the law of gravitation, comets' tails always point in the diametrically opposite direction. The only explanation heretofore given for this fact was in imagining the sun the seat of some repulsive force whose exact nature no one seemed to be able to conjecture. Arrhenius explains this force by the action of light on the small particles composing the comet's tail. Maxwell found that sunlight at the surface of the earth should exert a pressure of $.592 \times 10^{-10}$ grams on every square centimetre—a force too small to be detected, although it has been looked for—but at the surface of the sun this pressure would reach the considerable amount of 2.75×10^{-3} grams per square centimetre. A cubic centimetre of water weighing one gram at the surface of the earth would weigh 27.47 grams at the sun's surface, and consequently the attraction of gravity would be 10,000 times the light repulsion tending to drive it away. But let us make our cube smaller than a cubic centimetre in volume. The light pressure depends on the area of the surface exposed, and so diminishes as the square of the edge, while the weight depends on the volume and diminishes as the cube. Decreasing the size of the particle, the weight is diminished faster than the pressure of light, and as a result, if the particle were a cube of water measuring one-thousandth of a millimetre on a side, the repulsion would be about equal to the attraction. Particles of water larger than this would fall to the sun, while those smaller would be repelled from the sun. One-thousandth of a millimetre is called a *micron*, denoted usually by μ, so that the critical value of the edge of a cube of water, i. e., the value for which its weight is exactly neutralized by the pressure of light at the sun's surface, is approximately μ. For a spherical drop, the critical value would be about 1.5 μ. For other substances the critical value is inversely proportional to the specific gravity. This theory is in complete accord with that of Bredichin, who explained the cause of the curvature of different tails of a comet to be due to their being composed of substances of different specific gravities acted on by some repulsive force emanating from the sun, the hydrogen tail being less curved than the hydrocarbon tail. Arrhenius explains the nature of the repulsive force, and according to him the size of the drops in four particular cases investigated by Bredichin must have been 0.1 μ, 0.59 μ, 0.94 μ, and 1.25 μ respectively. Many anomalous facts in the appearance of comets and the formation of their tails now receive a ready explanation.

(*b*) *The Prominences and the Corona.*—The knowledge we have gained about the sun confirms the opinion that it is still in a gaseous condition. Radiation carries particles from the centre to the surface of the sun, and we are told by flash and prominence spectra that many vapors are projected into space. When these gases condense, the drops will, if larger than the critical size, fall back to the sun; and if smaller they will be thrown off into space, forming the streamers of the corona. Those particles that have approximately the critical diameter will float as clouds, giving rise to quiescent prominences. It has been difficult hitherto to explain how these prominences could exist without imagining an atmosphere about the sun, which would have to have the enormous extent of about half a million miles above the sun's surface. With Arrhenius's theory such an assumption is unnecessary, the prominences being sustained by the pressure of light.

(*c*) *The Zodiacal Light.*—Not only is the sun the source of the gaseous matter that causes the prominences, but as it is an intensely hot body, it will, according to Thomson, emit negatively charged ions. These ions serve as the nuclei of ordinary matter. The small particles ejected from the sun, each with its negatively electrified ion, will, when they encounter a body such as the earth, charge its outer atmosphere negatively, and when this charge reaches a certain value they will be repelled. The oncoming rush of particles will be deflected, and stream past the earth on both sides, the earth screening off the space immediately behind her. If we could take our stand on the moon and could look at the earth, we should see her with a sheaf of light projected from her towards the sun. This is probably the cause of zodiacal light.

(*d*) *Aurora Borealis and Terrestrial Magnetism.*—We are all familiar with the

appearance of the aurora, its beautiful darting, scintillating lights making it one of the most wonderful of natural phenomena. The peculiar color of the light reminds us of a discharge from an electrical machine, and as a result it has been felt by astronomers for many years that the northern lights are some electrical manifestation in the earth's atmosphere. The nature of this discharge, however, could not be determined satisfactorily until Arrhenius brought forward his theory. According to this the negative particles discharged from the sun must reach the earth most thickly over its equatorial regions. Before they reach an atmosphere dense enough to excite luminescence, they are caught by the lines of force of the earth's magnetic field. The particles follow these lines of force north and south, coming closer to the surface of the earth as they approach the earth's magnetic pole, over which the lines of force are vertical. Passing from the equatorial regions of the earth, the particles gradually reach lower layers of the atmosphere, and begin to give a discharge in appearance like that of a vacuum tube. But this discharge must be at the expense of energy, so that when they reach denser atmospheric layers, they have no more energy, and hence the dark circles around the magnetic poles. As these particles follow the lines of force, they ought to influence terrestrial magnetism, and as they emanate from the sun, the appearance of the aurora ought to be dependent on solar activity. A fine test of the theory will therefore be obtained if it is found that auroras, terrestrial magnetism, and solar activity vary together. It has been known for fifty years that the number of sunspots visible in a year, the amount of dip and declination of the compass needle, and the number of auroras all go through periods of 11.1 years, so that when a great number of sunspots are visible in any year, there are also a great number of auroras and a great variation of the magnetic needle. In fact, many instances have been noted where the sudden outburst of a sunspot has been accompanied with a brilliant aurora and also a "magnetic storm," during which compass needles vibrated wildly from side to side.

(*e*) *Meteorites.*—Negatively charged particles are ejected from the sun, and travel in all directions in inter-stellar space. Some of these particles moving with high velocity meet other particles from other suns, their high velocity overcomes the resistances to each other due to their similar charges, and the particles unite to form larger particles. Other particles are joined to this mass in the same way, giving an irregularly formed body highly charged with electricity. These are the meteors which from time to time dash through our atmosphere.

(*f*) *Nebulæ.*—When particles formed from smaller particles approach near the sun and have a diameter greater than the critical value, they will fall into the sun, to be in turn discharged into space. In this way there is an exchange of materials throughout the universe so that the stars are slowly becoming more and more alike in constitution. Countless millions of these particles, escaping from all visible suns, come into contact with nebulæ, which the spectroscope tells us are masses of gaseous material. The difficulty hitherto experienced in explaining the light of the nebulæ has come from the fact that these gases must be nearly at the intense cold of interstellar space. But how then do they become hot enough to be luminous? Arrhenius explains this anomaly, for according to his theory it is not necessary to suppose the mass heated throughout, but rather that the mass becomes luminous only on the outermost parts of the nebulæ, which at the same time may be of excessively low temperature.

New Gases in the Sun.—One of the most important lessons taught by the theory of Arrhenius is that particles of matter are continually being scattered throughout the universe, starting from one heavenly body and reaching another, with the result that all bodies of the universe are gradually becoming more and more alike. As a particular phase of this general idea, gases in the sun's atmosphere ought to be found in that of the earth. Those who are familiar with the spectroscope know of the yellow D_3 line, which plays such a prominent part in the spectra of the prominences and chromosphere. Its appearance puzzled spectroscopists for more than a quarter of a century, till in 1895 the substance "helium," which gives rise to the D_3 line, was found in the terrestrial mineral *clevite*. By utilizing the extremely low temperatures produced by liquid air and liquid hydrogen, it was found that atmospheric air contained several new gases. Argon was found in 1895 by Rayleigh and Ramsay, and in 1898 Ramsay discovered three other new gases, called neon, krypton, and xenon, present in air along with helium. As these five new gases are in atmospheric air, it would be interesting to see if they are also in the sun's atmosphere. Helium we know is in the sun, and it has lately been shown by investigations of spectra taken at the recent Sumatra eclipse, that neon and argon are certainly present in the neighborhood of the sun. It seems likely from certain theoretical considerations that krypton and xenon are also present, although none of their lines was detected in the photographic spectra.

These researches (made by Mitchell, of Columbia University) are interesting, as

they tell us something new about the sun, and also because they afford an independent verification of the theory of Arrhenius.

Disturbance in the Solar Corona.—To the astronomer, the most interesting feature of the corona of the 1901 eclipse, as shown by all photographs, was a disturbance in the northeast quadrant, which appeared as if some violent eruption were taking place. Nothing like this had ever been noted before. It remained for Professor Perrine, of the Lick Observatory, to show during 1902, that at the time of the eclipse a large sunspot was on the limb of the sun, directly under the disturbed region, the spot, by the rotation of the sun, being brought into view the next day. A thread-like prominence took its rise from the same region. Taking these observations in connection with the fact that the shape of the corona depends on the sunspot period, the corona being different in appearance when spots are a maximum and a minimum, we see that there is some intimate relation between the corona and prominences, and the activity of the sun as evidenced by spots. This again only bears further testimony to the correctness of the view of Arrhenius.

New Star in the Constellation Perseus.—Astronomers continued to devote much attention to this interesting object during 1902. First observed on February 22, 1901, by Anderson, of Edinburgh, it blazed up within a few hours until it almost equaled Sirius, the brighest star in the whole heavens. By February 24 it had begun to diminish in light, and by the latter part of March was only a rather inconspicuous telescopic star, quite invisible to the unaided eye. The latest observations of 1902 made it of about the 10th magnitude, so that it is now sending us light whose intensity is certainly not more than one three-millionth part of that which characterized the period of greatest brilliancy. In addition to its extraordinary momentary lucidity and rapid fluctuations of light, this *nova* exhibited some startling changes quite unique in the annals of astronomical observations. It was found on certain photographs that the star was surrounded by a nebula; and when pictures made on different dates were compared, this nebula was seen to be enlarging itself, widening out, as if the star were projecting matter outward into space with extraordinary velocity and almost incredible mechanical energy. It is possible that this phenomenon, though never previously observed in the case of any of the few bright *novæ* so far recorded by astronomers, may nevertheless not really be unique. For we must remember that to the present object astronomers have applied a new and very efficient method of observation, photography, with long-continued exposure to the feeble nebular light. It is conceivable that similar nebular expansions may have occurred also in the case of other *novæ*, but escaped detection by the older methods of observation. Even in the present case, the nebular observations were exclusively photographic, and nothing has been seen of these phenomena by eye and telescope alone.

The rapid fading out of the new star has limited somewhat the possibility of adding new knowledge of importance to our stock of facts about its nebular surroundings. But the star itself remained bright enough to make possible observation throughout a large fraction of a year with instruments suitable for the determination of stellar distances. The most accurate instrument for this purpose is the "heliometer," but existing instruments of this type do not permit the observation of stars fainter than about the 8th magnitude. Furthermore, to determine a star's distance it is theoretically necessary to observe it throughout six months at the very least. But the new star, as we have said, remained bright long enough; and so we have this year come into possession for the first time, of reliable knowledge as to the "parallax" of a "new star." In other words, we have obtained an approximate knowledge of the new star's distance.

This is of course important in the last degree, if an effort is to be made to explain the expanding nebula. Since we have photographs covering a rather long period of time, we can by measurement of these ascertain how much the nebula expanded in a given time unit. In other words, we obtain the rate per second at which the nebula, as seen on the sky, was apparently growing bigger. But this apparent rate of increase would of course mean much more motion if the nebula were very far away than it would mean if the nebula were comparatively near us in space. A given linear motion of 100 miles per second, for instance, would appear 100 times as big when seen at a distance (say) of 100 million miles, as it would if seen at a distance of 10,000 million miles.

Consequently, while we can measure the apparent increase in size of the nebula per second from the photographs, we can learn nothing from this about the actual linear velocity of motion, unless we can obtain an estimate of the star's distance from us. This estimate we now have from the parallax observations of at least two heliometers and one photographic telescope. The united evidence is conclusive that the star is so far away from us that its parallax is too small to be measured. The most that can be done observationally in this direction is to fix a limit within which the star is certainly not situated. But, as we have seen, the

further away our star is, the greater must be the linear velocity of motion to make the apparent growth of the nebula per second as large as we have measured from the photographs. Using the limit of distance, as determined, we can thus fix a corresponding limit of actual linear velocity for the rate of growth of the nebula. We can say with certainty that the nebula moved outward a certain number of miles per second, or more than that, but certainly not less.

Now the smallest linear velocity that will thus satisfy reasonably the parallax observations and those of the nebula itself is equal to the known velocity of light, about 180,000 miles per second. It is absolutely inconceivable that matter of any kind we know of, solid, liquid, or even gaseous, should be projected with any such velocity. Therefore astronomers have been led to abandon the idea that the nebular expansion is really matter being thrown outward into space from the star. They have adopted the ingenious notion that the occurrence of the known velocity of light as a limit of speed is not a mere coincidence. It may indeed be a fact that the star is not sending out nebulous matter at all, but is really only distributing light. This light, as it travels outward, might meet with some nebular matter previously dark, and while this was temporarily illuminated by the light, we should see it. Remembering that the star was extremely luminous for a short time only, we should naturally expect such illuminated nebular matter to be also visible temporarily only. On the whole, we consider this explanation to be the most plausible one thus far advanced to account for the new star's extraordinary nebular attendant. Nor does this theory interfere in the least with the earlier explanation that the cause of the star's own outburst into luminosity was a collision between two masses of dark matter. For in that case also it would be quite reasonable to expect to find more dark matter in existence near the spot where the collision had occurred. The whole theory fits together very well, and is to be regarded as a sufficiently satisfactory explanation of a somewhat obscure phenomenon.

Comets.—The first comet of 1902 was discovered by Brooks, April 15. No observations of it were obtained after April 19, as it passed to an unfavorable part of the sky. The second comet was discovered by Perrine, August 31, and independently by Borely the following day. It was easily visible to the naked eye in October when the moon was absent from the sky. A third comet is said to have been seen by Griggs on July 23, but no one else has observed it.

Planetoids.—The following minor planets have been officially added to the list since No. 469, the last one mentioned in the YEAR BOOK for 1901.

NUMBER.	Temporary Designation.	Date of Discovery.	Discoverer.	Name.
470	GJ	1901, April 21	Carnera	Kilia
471	GN	June 7	Wolf	.....
472	GP	July 11	Wolf	Roma
473	GC	Feb. 13	Wolf	.....
474	GD	Feb. 13	Wolf	.....
475	HN	Aug. 14	Stewart	Occlo
476	GQ	Aug. 17	Carnera	Hedwig
477	GR	Aug. 23	Carnera	.....
478	GU	Sept. 21	Carnera	.....
479	HJ	Nov. 12	Carnera	.....
480	GL	May 21	Wolf-Carnera	.....
481	HP	1902, Feb. 12	Carnera	.....
482	HT	Mar. 3	Wolf	.....
483	HU	Mar. 4	Wolf	.....
484	HX	April 29	Wolf	.....
485	HZ	May 7	Carnera	.....
486	JB	May 11	Carnera	.....
487	JL	July 9	Carnera	Venetia

ASYLUMS FOR INSANE. See INSANITY.

ATHERTON, GERTRUDE FRANKLIN, an American author whose book *The Conqueror,* a novel having Alexander Hamilton as its central figure, was one of the popular successes of 1902, was born in 1859, in San Francisco, Cal. She has been occupied with literary work since 1888, and since 1894 has lived abroad, chiefly in London, where her books have gained great popularity. Her *Senator North* (1900), a study of political and social life in Washington, D. C., received considerable critical attention, and *The Aristocrats,* which was published anonymously in 1901, was called by many one of the cleverest books of the year. Among her other works are *The Doomswoman* (1892); *Before the Gringo Came* (1894); *A Whirl Asunder* (1895); *Patience Sparhawk* (1897); *American Wives and English Husbands* (1898); *The Californians* (1898); *The Valiant Runaways* (1899), and *The Splendid Idle Forties* (1902).

ATHLETICS, TRACK AND FIELD. The year 1902 was notable in athletics, not from any abundance of remarkable performances but from the fact that the one

record which had been considered by experts as likely never to be broken, was surpassed on May 31 at the intercollegiate games when Arthur F. Duffey, of Georgetown University, ran 100 yards in 9 3-5 seconds. This performance occurred under perfect conditions, as to weather and timing, and marks Duffey as the greatest sprinter in the world. The previous record, of 9 4-5 seconds, was made by John Owen, Jr., in 1890, at Washington, D. C., and was held subsequently by several others. Other world's records bettered during the year were: Throwing the discus, to 127 feet, 8¾ inches, by M. J. Sheridan; and the relay race, 2 miles, lowered to 8 minutes 4 4-5 seconds, by the Harvard team, Boynton, Adams, Du Boise, and Baer. There was no international meeting, but on July 5, at Stamford Bridge, Duffey won the English championship at 100 yards in 10 seconds. At the same meeting, S. S. Jones, of New York University and the New York Athletic Club, won the high-jump at 6 feet 3 inches.

The twenty-seventh annual games of the Intercollegiate Athletic Association were held at Berkeley Oval, New York, on May 30 and 31, the winners being as follows: One hundred yards dash, A. F. Duffey, Georgetown, 9 3-5 seconds; 120 yards hurdles, I. H. Converse, Harvard, 15 3-5 seconds; 440 yards dash, W. J. Holland, Georgetown, 49 1-5 seconds; one mile run, R. E. Williams, Princeton, 4 minutes 29 1-5 seconds; two mile run, A. C. Bowen, Pennsylvania, 9 minutes 57 seconds; 220 yards hurdles, I. G. Willis, Harvard, 23 4-5 seconds; one-half mile run, H. E. Taylor, Amherst, 2 minutes 0:3-5 seconds; 220 yards dash, M. T. Lightner, Harvard, 21 3-5 seconds; putting 16-pound shot, F. G. Beck, Yale, 44 feet 8½ inches; running high-jump, W. C. Low, Syracuse, 5 feet 11 inches; pole-vault, D. S. Horton, Princeton, 11 feet 3 inches; throwing 16-pound hammer, J. R. De Witt, Princeton, 164 feet 10 inches; running broad-jump, A. T. Foster, Amherst, 21 feet 11 inches. On the basis of five points for first place, three for second, two for third and one for fourth, Harvard won the meet with 34 points. The other colleges scored as follows: Yale 30, Princeton 27, Amherst 11, Georgetown 10, Pennsylvania 9, California 8, Syracuse 8, Columbia 3, Cornell 3. Later in the year, W. A. Schick, of Harvard, who had finished second in both the 100 yards and 220 yards dashes, was disqualified by the Association, thus giving first place to Yale. The specific protest against Schick was for violation of the one-year residence rule. The disqualification also reversed the result of the Yale-Harvard meet of May 24, 1902, which had been won by Harvard at 61½ points to 42½. The transfer of the 10 points won by Schick in the dashes made Yale the winner, 52½ to 51½. Other dual meets were: Yale 8 5-6, California 4 1-6 (only first place counted); California 7, Princeton 6 (firsts only); Princeton 63½, Amherst 53½; Cornell 77, Princeton 40; Pennsylvania 82, Columbia 35; Cornell, 67, Pennsylvania 50; Chicago 8, California 5 (firsts only); California 78½, Leland Stanford 43½.

The meeting of the New England Intercollegiate Athletic Association at Worcester, Mass., May 24, 1902, was won by Amherst with 36 points. Dartmouth was second with 28½ points and Brown third with 19. The Western Intercollegiate Association met at Chicago on May 31. Michigan won with 36 points, followed by Chicago 25, Wisconsin 19, Drake 10, Minnesota 9, Beloit 8, Illinois 6, Notre Dame 5, Iowa 5, Northwestern 3. Abroad, on March 22, Oxford won from Cambridge by 5 events to 4.

The Amateur Athletic Union held its championships at Travers Island, N. Y., on September 13, 1902, but bad weather prevented any notable performances. The New York Athletic Club team won most of the events.

At the Canadian championships held at Montreal, September 20, seven out of the eleven events were won by Americans, the best performer being A. Grant, of the New York Athletic Club, who lowered the Canadian five-mile record to 27 minutes 18 1-5 seconds. The all-around championship of the Amateur Athletic Union went to A. B. Gunn, of Buffalo, for the second time, by a score of 6260⅛ points. The seventh annual Marathon road-race over the Ashland-Boston course (24 miles 1478.4 yards) was held on April 19, 1902, and was won by S. Mellor, Jr., of Yonkers, N. Y., in 2 hours 43 minutes 15 2-5 seconds.

ATOMIC WEIGHTS. See CHEMISTRY (paragraph Atomic Weights).

ATOXYL, a new arsenic compound, $C_6H_5NHAsO_3$, designed to take the place of the more irritating preparations, when a high dosage is required. It is given hypodermically in solution for chronic skin diseases such as psoriasis, diabetic xanthoma, lichen ruber, chronic exfoliative dermatitis, etc., and for alopecia areata (baldness) and malignant growths. The best results have been obtained in skin troubles. The drug is a white, odorless powder, having a salty taste, and soluble in warm water.

AUDUBON SOCIETIES. See ORNITHOLOGY.

AURORA BOREALIS. See ASTRONOMICAL PROGRESS.

AUSTRALIA, COMMONWEALTH OF, a British colonial possession comprising the five states of New South Wales, Queensland, South Australia, Victoria, and Western Australia, on the Australian continent, and the island state of Tasmania.

Area and Population.—The total estimated area of the commonwealth is 2,973,076 square miles, and the population in 1901 was 3,767,443, an increase from 3,174,253 in 1891. The populations of the several states in 1901 were as follows: New South Wales, 1,352,297; Queensland, 496,596; South Australia, 362,604; Victoria, 1,200,918; Western Australia, 182,553; and Tasmania, 172,475.

Government and Finance.—The commonwealth constitution was adopted by the several states in 1900 and went into effect on January 1, 1901. The executive power, vested in the King of Great Britain, is exercised by a governor-general appointed by him and advised by an executive council of seven ministers responsible to the federal Parliament, in which the legislative power is vested. The Parliament, which meets annually, consists of two houses—the Senate, composed of 6 members from each state, elected for six years, and the House of Representatives, consisting of 75 members, elected for a three-year term from the several states according to the following apportionment: New South Wales, 26; Victoria, 23; Queensland, 9; South Australia, 7; Western Australia, 5; Tasmania, 5. The legislative powers of the Parliament are extensive, applying, among other things, to commerce, railways, shipping, finance, posts and telegraphs, immigration, banking, currency, industrial regulation, and defense. Powers not transferred by the constitution to the federal Parliament are reserved to the state legislatures. The House of Representatives has special powers in respect to appropriation bills. There is to be a federal judiciary—at the head of which is a high (supreme) court, which hears appeals from the lower federal courts and the supreme courts of the states (see paragraphs on History). There is free trade between the states of the commonwealth, and a federal customs tariff is provided for. Further, the constitution provides that for ten years after January 1, 1901, the annual federal expenditure must not exceed one-fourth of the revenue derived from federal customs and excise, and that the surplus thus created shall be returned to the states, or used for the payment of debts taken over by the commonwealth.

The governor-general from the inauguration of the commonwealth up to July, 1902, was the Rt. Hon. John Adrian Louis Hope, Earl of Hopetoun. (See paragraph Lord Hopetoun's Resignation.) On November 21, 1902, it was announced that Lord (Hallam) Tennyson, formerly governor of South Australia, had been appointed governor-general of the commonwealth to succeed Lord Hopetoun for a term of one year. The commonwealth ministry appointed in 1901 underwent no changes during 1902. It was constituted as follows: Premier and minister for external affairs, Rt. Hon. Edmund P. Barton, New South Wales; attorney-general, Hon. Alfred Deakin, Victoria; minister for home affairs, Sir William J. Lyne, New South Wales; treasurer, Sir George Turner, Victoria; minister of trade and commerce, Hon. Charles C. Kingston, South Australia; minister of defense, Sir John Forrest, Western Australia; postmaster-general, Hon. James G. Drake, Queensland.

The statement of federal finance for the year 1901-02, as submitted to the commonwealth Parliament in September, 1902, showed a revenue for the fiscal year amounting to £11,288,903. Of this amount customs yielded £8,894,819, and posts and telegraphs £2,364,873. The expenditure amounted to £3,926,806, the principal items of which were: Postoffice, £2,336,465; defense, £856,400; and customs administration, £262,092. This left a balance to be returned to the states of £7,368,418, which was £519,000 more than was anticipated in the estimates. The amount was divided among the several states as follows: New South Wales, £2,385,905; Victoria, £1,920,974; Queensland, £904,775; South Australia, £616,148; Western Australia, £1,225,076; and Tasmania, £315,540. The revenue for the year 1902-03 was estimated at £11,510,104, of which it was expected customs and excise would furnish £9,055,000, and the postoffice £2,444,400.

Federal Defense.—The relations of the commonwealth to Great Britain, particularly in regard to provisions for federal defense, assumed during 1902 great importance by reason of a rearrangement of the agreement between Australia and the imperial government as to naval defense and a proposed reorganization of the land forces. The existing agreement as to naval defense, entered into in 1887, provided for the equipment and maintenance in Australian waters of a fleet of five fast cruisers and two torpedo boats. It was provided at that time that the several Australian states and New Zealand should pay interest at the rate of 5 per cent. on the original cost, and also the cost of maintenance which was not to exceed £91,000 annually. The total subsidy, including interest paid by the states, amounted in 1899-1900 to £126,000. It was further provided that the squadron should not be withdrawn from Australian waters in case of war. The vessels are now growing obsolete and have little fighting value, and with the question of

replacing them has arisen the question as to whether the system is the most advantageous that can be devised for the commonwealth. During the first year of the commonwealth's existence a strong movement manifested itself for a termination of the old arrangement, and the construction and maintenance of a purely Australian fleet. To such a proposition the British admiralty is unalterably opposed. On the other hand the Barton ministry was supposed to be rather favorable to the change. Mr. Joseph Chamberlain, the British colonial secretary, declared at the conference of colonial premiers (see GREAT BRITAIN, paragraph Colonial Conference), which convened at London, June 30, 1902, that it was unfair that Great Britain should be forced to continue to supply such a disproportionate amount for imperial defense, which is as vital a question to the colonies as to the mother country. Later conferences were held between Lord Selborne, first lord of the admiralty, and Sir Edmund Barton and Sir John Forrest, by which the latter agreed that the commonwealth (exclusive of New Zealand) should contribute £200,000 annually toward the cost of an improved Australian squadron to be maintained in Australian waters under an arrangement similar to the existing one, and for the establishment of a branch of the Royal Naval Reserve. The agreement, if ratified by the commonwealth Parliament, was to hold good for ten years, and although under its provisions the annual contribution of Australia was practically doubled, Lord Selborne pointed out that the effectiveness of the defense would be more than doubled by the increase in size and equipment of the new squadron, and that the money contribution amounted to only 1s. 0¾d. per capita, or little more than 1 per cent. of the charge for the navy borne by the taxpayers of the United Kingdom. In the same conference, the attempt to reach an agreement on the suggestion of Mr. Brodrick, secretary of state for war, looking toward the establishment in all the colonies of a specially trained force that should constitute a part of the army reserve of the imperial forces, was opposed by the Australian representatives, who held with the Canadians that it would be better to raise the standard of training for the general body of the colonial forces, leaving it to the colony, in any emergency, to determine the character and extent of its contribution to the imperial defense. In line with this position Premier Barton announced in November, 1902, that a bill would be introduced welding the separate military systems of the several states into a consistent organization on a more effective basis. The proposal provided for an increase of the field force from 14,000 to 28,748, making, with the garrison corps, a total of 44,218 men.

The Federal Tariff.—The Commonwealth act which provided for inter-state free trade also provided that within two years from the date of the establishment of the federal government, a uniform system of tariff duties should be established. The federal parliamentary elections in March, 1901, turned largely upon the question of the tariff and resulted in the selection of a Senate in which the free-traders and low tariff advocates had a small majority and a House of Representatives in which the protectionists and moderate tariff party could count on a majority in favor of a moderately high tariff. The government tariff bill introduced in the House on October 8, 1901, was practically a protective measure. Realizing that in its original shape the bill would stand no chance of acceptance by the Senate, the moderates joined with the free-traders in the House to effect a reduction. The bill was the principal subject of debate in the House for several months. By the end of March, 1902, the revision had been practically completed. In most cases a compromise between the government schedules and the alternative demands of the opposition was agreed upon, and tea, kerosene, and other staple articles of universal consumption were put on the free list. A provision for the collection of duties on articles imported by the various states was added to the bill, in spite of the objection of the free-traders and states-rights party, who declared that the clause violated that section of the constitution which provides that state property be exempt from taxation. In this form the bill went to the Senate in April. Immediately the Senate majority set about a wholesale reduction of the House bill schedules, showing no disposition to listen to compromise. In vain the government leaders warned the free-traders that their action would provoke a quarrel with the House involving grave constitutional issues. Almost completely shorn of its protective provisions the bill was at length sent back to the House. The Senate's powers over finance bills do not include amendment, but take the form of requests to the lower house to omit such provisions as it will not agree to. On August 14 the House considered and rejected all the Senate's requests for reduction. A prolonged deadlock with consequent dissolution was threatened, when the ministry determined that rather than face such a crisis they would accept a moderate tariff, trusting to future legislation to establish the protective system they had planned. They therefore called in consultation the government leaders in both houses, and proposed compromises on the disputed points which were accepted, although with

rather bad grace. The bill as thus agreed upon was passed September 9, and assented to September 16.

An Australian "Monroe Doctrine."—The insistence in Australia that Great Britain shall set bounds to the further extension of the territorial acquisition of Germany, France, or any other European country in the Australasian and South seas was shown during 1902 in the feeling aroused in the commonwealth by a report that Great Britain was contemplating giving up her share in the New Hebrides to France, with whom the islands are now jointly administered, in exchange for a withdrawal of the French claims to the Newfoundland fisheries. Although no official statement has been made in regard to such an agreement, Premier Barton took a hand and cabled to Mr. Chamberlain that the Australian commonwealth would never consent to the complete establishment of French sovereignty in the islands.

The Drought and the Economic Situation.—The year 1902 was the seventh successive year in which a severe drought prevailed in Australia. The industrial and commercial life of the country has been greatly affected, and it is estimated that, in the year ending in September, 1902, the losses of sheep and lambs alone amounted to over 40,000,000 head. Many of the waterways in the interior have become unnavigable, and unemployed men are drifting into the cities by thousands. During 1902 there was a steady emigration to South Africa. In December it was stated that in a little more than three months 6350 adults with £200,000 had left for South Africa. Of these, 1670 went from Victoria alone, a state whose high-tariff and wages-boards represented more nearly the triumph of labor politics than any other state in the commonwealth. Prices for all necessities have advanced enormously, and the ranks of the unemployed are increasing daily. The opponents of state socialism and the labor legislation programme attribute the economic depression to the application of these policies. A London *Times* correspondent declares that "the right to work is rapidly being expanded into a right to wages, with or without work. The state cannot invent work fast enough for the thousands who have been taught to look to it for employment more remunerative and less onerous than can be offered them by private enterprise; but it can, and is expected to, pay wages, and the wage-bill which the state has to meet is growing with alarming rapidity, and entirely out of proportion to the value and usefulness of the work it represents.".

Lord Hopetoun's Resignation.—In May, 1902, Premier Barton on behalf of the ministry introduced a bill in the House providing for an annual allowance of £8000 for Lord Hopetoun, to enable him to recoup himself for the expense necessary for the maintenance of government houses in both Sydney and Melbourne, pending the completion of the new federal capital. The House refused a permanent annual grant, but voted the sum of £10,000 toward the expense incurred by the governor during the visit of the Prince of Wales in 1901. After the refusal of the House to supplement his salary, Lord Hopetoun cabled to Mr. Chamberlain his resignation as governor-general, declaring that the demands on his private purse were greater than he could stand. It was semi-officially stated on May 20 that Lord Hopetoun considered that the federal government had broken faith with him. The refusal to grant the allowance asked had, it was said, the effect of practically cutting his salary to £6000, as his salary was only £10,000, and no provision was made for the payment of a staff or for state entertainments. He had already, it was explained, spent over £25,000 out of his private purse.

The Immigration Question.—Toward the end of 1902 a serious difficulty arose from the enforcement of the provisions of the immigration restriction act passed late in 1901. It was just such a difficulty as its opponents had pointed out would occur sooner or later. The law, which was designed to exclude Chinese, Japanese, and South Sea islander immigration, provided that every immigrant should be required to write out at dictation and sign in the presence of an immigration officer, a passage of fifty words in some European language. A further clause provided that contract laborers, unless skilled, should be excluded. Early in December, 1902, six British workmen, who had arrived on the steamship *Orontes*, under contract with a clothing manufacturer, were refused permission to land under this act. After considerable exchange of communications between the premier and the British colonial office, Sir Edmund Barton decided, despite the remonstrances of the Labor party, that the men were skilled, and allowed them to land. The incident was looked upon as a warning that unless repealed the act would give rise to further friction between the commonwealth and imperial government, as the former will find it difficult to pacify the powerful labor element if it evades the act, as it unquestionably did in the present instance.

Other Matters.—In April, 1902, the House committee on decimal coinage reported in favor of the adoption of a decimal coinage system based on the sovereign. In the same month, imperial penny postage was adopted for the commonwealth for

all ingoing letters, although the outward rate was kept at 2½d. In March the House passed a bill for the establishment of a federal court of justice, as provided for in the constitution, but the measure was coldly received in the Senate, and up to the end of the year had not been accepted by them. See NEW SOUTH WALES, QUEENSLAND, SOUTH AUSTRALIA, TASMANIA, VICTORIA, and WESTERN AUSTRALIA.

AUSTRIA-HUNGARY, a constitutional monarchy of central Europe comprising the empire of Austria and kingdom of Hungary, united under one sovereign. The capital of Austria is Vienna, and of Hungary Budapest.

Area and Population.—The monarchy has a total area of 240,942 square miles, of which Austria comprises 115,903 square miles, and Hungary (including Croatia and Slavonia, 16,773 square miles) 125,039 square miles. According to the revised figures of the census of December 31, 1900, the population was as follows: Austria, 26,150,708; Hungary, 16,838,255; Croatia and Slavonia, 2,416,304—total 45,405,267. The leading nationalities in Austria and Hungary (including Croatia and Slavonia) respectively were as follows: Germans, 9,170,939 and 2,135,181; Magyars, 9516 and 8,724,301; Czechs, Moravians, and Slovaks, 5,955,397 and 2,019,641; Ruthenians, 3,375,576 and 429,477; Crotians and Servians, 711,380 and 2,730,749; Roumanians, 230,963 and 2,799,479; Italians and Ladins, 727,102 (in Austria). According to religion, there were in Austria and Hungary (including Croatia and Slavonia), respectively: Roman Catholics, 20,660,279 and 9,919,913; Greek and Armenian Catholics, 3,136,535 and 1,854,143; Orthodox Greeks, 606,764 and 2,815,713; Evangelicals (Helvetian Confession), 128,557 and 2,441,142; Jews, 1,224,899 and 851,378; Evangelicals (Augsburg Confession), 365,454 and 1,288,942. Vienna had 1,674,957 inhabitants and Budapest 716,476. Religious toleration prevails, but the emperor-king must be a member of the Roman Catholic Church. Elementary instruction is free and compulsory.

Common Government and Finance.—The executive authority rests with the common sovereign. Franz Josef I. has been emperor of Austria since December, 1848, and king of Hungary since June, 1867. Under the constitutional compromise of 1867, known as the *Ausgleich*, the common administration is directed by the emperor-king, assisted by a ministry of three members, for foreign affairs, finance, and war, who are responsible to a common legislature called the Delegations. Each of these consists of sixty members, the one body representing Austria and the other Hungary, and they convene each year alternately at Vienna and at Budapest. The common government deals with foreign affairs, the army, the navy, finance relating to the monarchy as a whole, certain state monopolies, and the diplomatic, postal, and telegraphic services. The composition of the ministry in 1902 was: For foreign affairs, Count Agenor M. A. Goluchowski (since May, 1895); for finance, Benjamin Kállay de Nagy-Kálló (since June, 1882); for war, Lieutenant-General von Pitreich (since December, 1902).

The proportion of the common expense to be borne by Austria and Hungary was established by an agreement of 1867, renewable every ten years. This agreement, which together with a number of economic and customs measures was a part of the *Ausgleich*, was not renewed in 1897 and two years later was dissolved. It was superseded in 1899 by a reciprocity treaty (in force under certain conditions until December 31, 1907), which provides that the common expenses of the monarchy be paid in the proportion of 65.6 per cent. for Austria and 34.4 per cent. for Hungary. See paragraph Ausgleich.

The monetary standard is gold and the unit of value the krone, worth 20.3 cents. According to the sanctioned estimates, the revenue and expenditure for 1900 balanced at 337,348,000 kronen; for 1901, revenue 364,337,000 kronen, and expenditure 337,000,000 kronen; for 1902 they balanced at 365,181,966 kronen; 1903, 372,438,000 kronen. These estimates show receipts from customs as follows: 1900, 124,950,000 kronen; 1901, 125,039,249 kronen; 1902, 110,541,299 kronen. The largest item of expenditure is for the army.

Joint debts are not contracted. A debt, however, was assumed in common when the union of the monarchy was effected in 1867, and this in 1901 amounted to 5,434,428,306 kronen, the charges being 189,028,560 kronen for Austria and 60,577,662 kronen for Hungary.

Army and Navy.—The peace strength of the Austro-Hungarian army in 1901 is reported as follows: The common army, consisting of fifteen army corps, had 304,293 officers and men; the Austrian Landwehr, 27,729; the Hungarian Honvédség, 27,856; total active army, 359,878 officers and men. On a war footing the army numbers about 1,872,000.

The Austro-Hungarian fleet was reported to comprise in March, 1902, 3 second-class battleships, 4 third-class battleships, 2 armored cruisers, 8 protected cruisers, 7 port-defense vessels, 12 torpedo gunboats, 32 first-class torpedo boats, 32 second-class torpedo boats, and 8 third-class torpedo boats. The fleet is being gradually developed and old vessels replaced by new ones. In 1902 the substitute battleships

Laudon and *Drache* were laid down. Each will have a displacement of 10,600 tons, indicated horse-power 14,000, and speed 19 knots. See MANŒUVRES, MILITARY AND NAVAL.

Government and Finance of Austria.—The executive authority is vested in the emperor, under whom the administration is carried on through a ministry of ten members appointed by him and responsible to the legislative body, the Reichsrath. This consists of an upper house (Herrenhaus) and a lower house (Abgeordnetenhaus); membership in the former is appointive and hereditary, and in the latter elective. In 1902 the premier and minister of the interior was Dr. Ernst von Koerber (appointed January 21, 1900). Each province has a representative diet (Landtag), which deals with matters not reserved for the Reichsrath.

The revenue and expenditure in kronen (20.3 cents) have been estimated as follows, respectively: 1901. 1,641,997,585 and 1,641,163,344; 1902, 1,685,966,357 and 1,685,117,944; 1903, 1,690,182,264 and 1,689,116,863. The consolidated debt in 1901 amounted to 3,608,140,700 kronen, and the floating debt 13,017,082 kronen—total, 3,621,157,782 kronen. Interest and amortization amounted to 150,813,218 kronen.

Government and Finance of Hungary.—As in Austria, the executive authority in Hungary, including Croatia and Slavonia, is vested in the sovereign, and under him the administration is directed by a ministry of nine members, whom he appoints and who are responsible to the parliament (Országgyülés). This body is bicameral, membership in the upper house being largely hereditary, appointive, and *ex-officio*, and in the lower house elective by popular vote. Though represented in the parliament, Croatia-Slavonia has a separate diet. In 1902 the Hungarian premier and minister of the interior was Koloman de Szell (appointed in February, 1899).

In 1900 the revenue and expenditure in kronen were 1,197,036,000 and 1,083,521,000, respectively. The estimate in kronen for 1901 was 1,056,582,297 for revenue, and 1,056,556,517 for expenditure; for 1902, revenue, 1,086,870,018, and expenditure 1,086,749,083. In 1900 the consolidated debt amounted to 2,284,580,000 kronen and the total debt 5,186,323,000 kronen.

Industries.—In both Austria and Hungary agriculture is the leading industry. Manufacturing industries, which are developing, have gained so much more importance in Austria than in Hungary, that this difference affords one of the leading points of dispute between the two parts of the monarchy in the matter of establishing a new customs tariff. Valuable mineral deposits are worked in both countries, but not to the best advantage. In 1900 the production in hectolitres (2.838 bushels) of the leading crops in Austria was: Oats, 37,021,000; barley, 20,525,000; rye, 19,906,000; wheat, 14,741,000; while in metric centners (220.46 pounds)potatoes amounted to 117,020,000; sugar beets, 52,282,000; other beets, 27,648,000. In Hungary production in metric centners in 1900 was: Potatoes, 48,622,000; sugar beets, 19,857,000; other beets, 43,794,000; wheat, 41,432,000; barley, 12,362,000; oats, 11,061,000; rye, 10,793,000. Nearly half of the beets are raised in Bohemia. In 1900 the reported values of mining and furnace products in Austria were 233,454,480 kronen and 99,975,800 kronen, respectively; in Hungary, 63,142,700 and 56,037,900, respectively. During 1901 and 1902 serious economic depression, especially in the manufacturing industries, prevailed in Austria-Hungary. This, augmenting the stress of competition, was doubtless an important factor in the formation of a kartel, or combination, of the iron and steel industries, comprising twenty-three separate establishments, with an aggregate capital of 280,000,000 kronen. After months of negotiations the formation of this trust was announced in November, 1902. The trust, in fact, consists of two kartels, one of eighteen Austrian establishments and the other of five Hungarian, but the two are managed jointly by a central authority, which regulates output and fixes prices for the several separate establishments. The organization includes practically every important iron and steel interest in Austria-Hungary, such as raw iron, bars, plates, rails, nails, and wire. The scheme is to remain in force until June 30, 1912.

Commerce.—The special commerce (imports for consumption and exports of domestic produce) of the customs territory, including Bosnia and Herzegovina (*q.v.*), has been as follows in kronen, the trade in specie and bullion being excluded:

	1898	1899	1900	1901
Imports	1,639,602,000	1,608,870,000	1,696,358,000	1,652,643,000
Exports	1,615,244,000	1,861,592,000	1,942,003,000	1,885,458,000

In 1900 imports and exports of specie and bullion amounted to 44,897,000 kronen and 66,546,000 kronen, respectively, and in 1901 to 173,485,000 and 41,845,000, respectively. The values in kronen of the leading imports in 1901 were: Cotton, 142,800,000; coal, 107,700,000; wool, 90,800,000; tobacco, 56,200,000; skins, 46,300,000; books, etc.,

43,500,000; leather, 43,100,000; machinery, 42,300,000; coffee, 41,000,000; silk, 38,000,000; cereals, 36,900,000. The leading exports in 1901 included: Wood, 219,400,000 kronen; sugar, 176,700,000; cattle, etc., 120,600,000; coal, 105,800,000; eggs, 96,500,000; cereals, 89,200,000; leather goods, 50,800,000; glass, 49,100,000; malt, 46,200,000; woolen goods, 44,000,000; wooden wares, 43,000,000; skins, 39,000,000; jewelry, 38,900,000; paper, 30,700,000. Imports from and exports to the countries of greatest commercial importance in 1900 and 1901 were valued in kronen as follows:

Countries.	Imports.		Exports.	
	1900	1901	1900	1901
Germany	635,375,000	634,559,000	1,016,340,000	977,776,000
Great Britain	148,942,000	136,539,000	201,250,000	186,890,000
United States	152,823,000	128,516,000	37,935,000	32,700,000
Italy	114,297,000	104,097,000	146,987,000	136,473,000
British India	84,242,000	95,339,000	45,650,000	60,364,000
Russia	89,149,000	86,258,000	71,661,000	72,734,000
France	53,864,000	55,468,000	68,490,000	65,155,000
Switzerland	56,299,000	49,235,000	68,630,000	64,428,000
Servia	42,213,000	41,986,000	24,174,000	22,634,000
Roumania	32,227,000	38,249,000	43,211,000	47,806,000
Brazil	43,489,000	37,782,900	5,364,000	6,489,000

Communications.—At the beginning of 1902 there were in operation in Austria 19,270 kilometres (11,974 miles) of railway, and in Hungary 17,101 kilometres (10,626 miles)—total, 36,371 kilometres (22,600 miles). The canal mileage navigable for steamers has been reported at 818 in Austria and 1923 in Hungary. In 1900 there were 7070 postoffices in Austria and 4923 in Hungary, besides 31 foreign offices. In the same year Austria had 5463 telegraph offices, with 39,405 kilometres (24,485 miles) of line, and 176,651 kilometres (109,766 miles) of wire, and Hungary 3256 offices, with 22,824 kilometres (14,182 miles) of line, and 114,741 kilometres (71,293 miles) of wire.

HISTORY.

The Austrian Parliament.—The lower house of the Reichsrath, which was elected in December, 1900, and January, 1901, comprises more than twenty separate parties or political groups; these, however, in a general way, are divided into the Right and the Left. The principal elements composing the Right are the Poles, who are conservative and Catholic; the Clericals, who though of German blood prefer, on account of their conservatism, to stand with the Poles; and the Czechs of Bohemia, who, though liberal rather than conservative, make of greatest importance their anti-German propaganda. The Left, which includes most of the Germans, is composed principally of the Liberals, the Radicals, and the Pan-Germans.

It will be remembered that in 1901, after four years of parliamentary obstruction, the premier, Dr. von Koerber, succeeded in getting the Reichsrath to adopt his economic bill providing for railways and canals. Disputes, however, upon the race and language question were resumed in all their bitterness in the autumn session of 1901, and continued in the following session, which began on February 4, 1902. Early in the year Dr. von Koerber was forced to hint for the second time at the possible suspension of the constitution unless the dilatory and disorderly tactics of the factions should cease. But the premier did succeed in persuading the Reichsrath to adopt a number of measures, including the budget, the authorization of certain agricultural bodies, and amendments to industrial laws. This success was won from the various factions, each having a national and political programme, only by means of concessions to their financial demands. It appears that these demands, exacted at a time of economic depression, proceeded not so much from actual need as from the sense of equality dominant in each nationality. It may be said that to establish equality among the eight clamorous nationalities existing in Austria, in the courts, the schools, and the various public services, such as railways, posts and telegraphs, it would be necessary to decentralize the administration in many respects, a change that would entail upon the government greatly increased expenditure. With this the government is not prepared to cope; for during the four years when, on account of obstruction, the budget was not voted by the parliament, but was approved by imperial ordinance in virtue of paragraph fourteen of the constitution, the expenses increased by about 250,000,000 kronen, while the revenue did not expand proportionally. The industrial depression, moreover, that has existed for a number of years threatened in 1902 to become still worse from the application of the Brussels sugar convention (proposed to go into effect in September, 1903), so that a real difficulty begins to appear for maintaining the equilibrium of the budget.

By the ever recurring language disputes between Czech and German, the spring

session was frittered away. It is the Czech and German controversy in Austria that attracts greatest attention; but there are other grave racial questions as well. Italian irredentism is discussed daily. The Poles, even when showing fidelity to Austria, which has given them administrative autonomy, are dreaming of a new Poland, united and independent. The Ruthenians are restless. The Roumanians carry on a campaign for effecting a union with their mother country. The Slavs of the south, the Serbs, Slovenes, and Croats, look for the solution of the Balkan question in the reconstitution of the disparate Slav states. With these divers and conflicting ambitions dominant, there is small wonder that the members of the Austrian parliament serve Austria so meanly. In one thing the government pleased all parties. It gave its approval to a bill modifying the press law of 1867 by increasing the privileges and the legal protection of authors, publishers, and booksellers. The session adjourned on June 20.

The fall session of the Reichsrath began on October 16, 1902. Before it were many important bills left over from the preceding session. But parliamentary action was destined to be once more stultified by Czech obstruction. Since 1897 this system of political ruffianism has continued practically without interruption, save the four months of conciliation in 1901 and a short period at the beginning of 1902. Its introduction into the Reichsrath came through the repeal of the Badeni ordinance, soon after its promulgation (1897), which granted to the Czechs certain rights in regard to language. For such rights the Czech members have been fighting, by nullifying other parliamentary business ever since, with the result that administrative activity and authority, public finance, the wonted prestige of justice, and the dignity, to say nothing of the efficiency, of parliament, are despaired of at home and ridiculed abroad. In general, measures are adopted, if at all, by unworthy concessions or unscrupulous political bargaining; and this probably applies even to the economic bill passed in 1901 and the budget voted in 1902. In the latter year the government, firmly believing that the language question could be settled only by legislative enactment, would not, as in the Badeni case, issue an ordinance on the subject at the demand of the Czechs. On October 14, 1902, two days before the opening of the parliament, Dr. von Koerber called together the representatives of the two factions and submitted for their consideration a measure constituting the basis of a settlement for the official use of Czech and of German in Bohemia and Moravia. It was proposed to divide Bohemia into three zones, German being the official language in the first, Czech in the second, and the two languages in the third. Under this system, many details of administration were proposed. As might have been foreseen, the plan failed to please either the Germans or the Czechs. Although the former demanded simply modifications of the project, the Czechs refused even to give it serious consideration, for they held that it was in contradiction to the traditions and rights of the kingdom of Bohemia, which could not approve the official establishment of any language except Czech, even in its German districts. Neither was any agreement reached in regard to Moravia. Upon the opening of the parliament, the premier again attempted to pave the way for a legislative solution of the difficulty. "Any ordinance," he said, "is a sheet of paper; a law is a table of bronze. An ordinance expresses the wish of an unstable ministry; a law is the will of the empire. Law is a guaranty of peace." The Germans then submitted a plan for the settlement of the question in Bohemia, where about 37 per cent. of the population is German. These proposals were even more radical than those of the premier, and, like his and on the same grounds, were wholly rejected by the Czechs. So it was that from the opening to the closure of the session, on December 18, 1902, the usual obstructionist tactics held full sway, notwithstanding the urgent need of harmony, in view of the *Ausgleich* negotiations then going on. Only two measures were enacted. The one prohibited dealing in futures in grain on Exchange, providing for its violation penalties of heavy fines and imprisonment; the other, inspired by a reactionary spirit of protectionism, forbade peddling.

At the end of the year, when the parties were thoroughly at variance and the general situation was most disconcerting, the premier was obliged to authorize the raising of revenue for the first six months of 1903 by imperial ordinance.

Hungary.—Few measures of wide significance or importance were enacted by the parliament in the sessions of 1902. Indeed, the main interests of that year lay in the menacing growth of racial feeling in the kingdom, the increasing sentiment for a separation from Austria save in the person of a common sovereign, and the negotiations on the *Ausgleich*, which involved a far-reaching consideration of Hungary's economic condition. In the fall of 1902 it appeared that the race question was becoming in no small measure a disturbing factor to the government, and both M. de Szell, the premier, and Count Albert Apponyi, the president of the lower house of parliament, had fears of a recrudescence of race bitterness. The Magyars constitute a little over half the population, the remainder being for the most part Slav and Roumanian, chiefly the former. Probably much of the unrest in Hungary

is due to the pan-German propaganda, for though Germans constitute only a small part of the inhabitants, it is felt that they have behind them not only a large German element in Austria but even the German empire itself. It is this feeling doubtless that has served to turn away to a noticeable degree Magyar favor from the Triple Alliance. Behind the Slavs is the ever suspected power of Russia, and it is likely that even the Roumanian interests have some support, moral at least, from abroad. Thus the Magyars stand alone, and, as though trouble at home were not enough, they are constantly at odds with Austria. This was particularly evident in 1902 in respect to army administration, and, aside from the *Ausgleich* dispute, culminated in the popular resentment against Minister von Krieghammer's army bill.

On March 4, 1902, M. Hegedues, the minister of commerce, resigned and was succeeded by M. Horansky; the latter died on April 9, and was succeeded on the 30th by M. Lang. On September 19, 1902, the hundredth anniversary of the birth of Louis Kossuth was celebrated with great popular demonstration and elaborate ceremony.

The Ausgleich.—During 1902 the most prominent feature in the affairs of the monarchy as a whole was the negotiations between the premier of Austria, Dr. Ernst von Koerber, and the premier of Hungary, M. Koloman de Szell, looking toward the renewal of the economic and customs union, popularly known as the *Ausgleich.* This term properly signifies the constitutional compromise of 1867, which forms the basis of the dual monarchy, and as such includes the arrangements relating to the dynasty, army and navy, and foreign affairs—arrangements that under the existing constitutions are unalterable. The *Ausgleich* also contained an agreement concerning the financial and commercial relations subsisting between Austria and Hungary, and this was subject to revision every ten years. It is this financial and commercial compromise, or customs union, that has been the subject of controversy since 1897. The compromise failed of renewal in that year, and in 1899 was formally dissolved. As a substitute for the customs union a reciprocity treaty was ratified by the Hungarian parliament in June, 1899, and in Austria by the imperial ordinance of September 21, 1899. This arrangement did not fix the exact date at which a definitive customs union should be established. The imperial ordinance, however, provided that conferences for effecting such a union should be begun in 1901, and that the customs tariff should be replaced by a new tariff before the beginning of negotiations with foreign powers for the conclusion of treaties of commerce. From the latter provision it appeared that the existing customs arrangement should be brought to an end before January 1, 1903, since at that time the treaties of commerce with Germany and several other states could be denounced. Finally, the imperial ordinance of 1899 provided that if by the end of 1903 a definitive customs and commercial union had not been concluded between Austria and Hungary, the existing economic union should continue only to 1907. The Hungarian parliament voted also that if by 1903 such a customs union had not been agreed upon, these treaties of commerce should not be prolonged after 1907. The Hungarian parliament also demanded that the definitive customs union should be ratified in Austria by parliament and not, as was the provisional union, by imperial ordinance. Without the approval of the Reichsrath, Hungary would not agree to the conclusion with foreign states of treaties of commerce binding both parts of the monarchy. The purpose of this measure, which has received the name of its author, Szell, is to reserve to Hungary the right of fixing its economic relations with other states in case of continued obstruction in the Reichsrath.

Discussions of the customs union by the two premiers, begun in 1901 in accordance with the agreement of 1899, continued through 1902. In May of the latter year serious difficulties presented themselves. On June 24 the Austrian government notified Hungary of its intention to denounce the treaties of commerce with foreign nations at the end of 1902. In order to carry out this measure it was necessary that some economic *modus vivendi* be established between the two parts of the monarchy, and to this end what amounted to a practical intervention on the part of the emperor-king, Franz Josef, in the negotiations between the dissident premiers took place on June 30. The understanding reached at that time was only general and tentative, and it was recognized that the further negotiations necessary would prove long and laborious, though the great danger—a separate customs system for each half of the monarchy—disappeared, at least for the time being. In October it was reported that the negotiations had been broken off, but they were renewed and continued throughout the month of December. On the evening of December 31, 1902, an agreement was reached at Vienna by Dr. von Koerber and M. de Szell with regard to the customs union, which up to the last moment had remained in doubt. It appeared that the premiers came to this agreement only through mutual concessions, due largely to pressure brought upon them by the personal interference of Franz Josef and the heir-presumptive, the Archduke Franz Ferdinand. In some quarters it was stated that the aged sovereign threatened to abdicate were the agreement not

arrived at before the end of 1902; however this may have been, it is certain that his personality, which during a reign of more than half a century had showed itself master in many a crisis, was the moving force that brought the two premiers together. It remained for the parliaments of Austria and Hungary to ratify the arrangement thus concluded, and at the end of the year promise of such ratification was none too good.

In their negotiations the crux of the difficulty before the two premiers, both of whom strove faithfully to support the interests of their respective constituents, had been the abiding conflict between industrial and agrarian peoples on the subject of the tariff. In the case of Austria and Hungary this conflict was augmented by a mutual indisposition to accept any equitable concessions. Austria is becoming more and more an industrial country, while Hungary is distinctively agricultural. The demand of Hungary for high tariffs on cereals, wool, hemp, flax, jute, and other agricultural products was hotly contested by Austria, since such tariffs on raw materials would threaten the very existence of Austrian industry; on the other hand Hungary refused to increase the protective tariffs demanded by Austria on various manufactured products. In despair Austria pointed out that the existing tariffs on cereals and cattle had almost shut against her the Russian markets, as well as important trade outlets that she had won for herself in Roumania and the Balkan states; and even in Hungary, Austrian trade was on an unfavorable basis, since the Hungarians had established differential freight rates favoring their own goods. Both premiers were strengthened in their positions by parliamentary warnings against any sacrifices, and when, as was natural in these circumstances, conference after conference during 1902 was barren of result, a popular desire developed for economic separation, "divorce" becoming the rallying cry of the radical parties in both countries. But such a separation is more easily advised than adopted. Nevertheless, it is safe to say that if the Szell-von Koerber agreement, which was finally reached on December 31, 1902 (though its provisions are not yet available), is not of a decidedly agrarian character, that agreement will not receive the sanction of the Hungarian parliament, while in any case it can be ratified in Austria only through concessions to the various nationalities, involving great and unnecessary expense to the government.

The Minister of War.—In the fall sessions of the Austrian and Hungarian parliaments, the minister of war, General Baron Edmund von Krieghammer, introduced bills for the reform of the artillery, including the purchase of new guns and the complete reorganization of the field and mountain artillery. Immediately the plan met with much public opposition, and partly on this account and partly on account of his age and consequent desire to be relieved of the burdens of office he resigned, December 18. It then became known that the government proposed to increase the annual contingent of recruits from 103,000 to 125,000 for the infantry and to 140,000 for the Landwehr in 1903. The bills were in the hands of parliamentary commissions at the end of 1902. General von Krieghammer, who was seventy years old, had passed fifty-three years in active military work, the last nine as minister of war. In Hungary he was said to be unpopular, by reason of his appointment of Austrian officers to Hungarian regiments. Late in December, 1902, he was succeeded, through appointment of Franz Josef, by Lieutenant-General von Pitreich.

Pan-Germanism.—However fanciful it may seem, the popular movement for a greater Germany continues. The idea of a union with the German empire of all the German-speaking peoples of Europe, and, through the exigencies of geographical position, of some other nationalities has become in Austria an important political factor, and has even made itself felt in Hungary, where in 1902 it provoked not a little Magyar indignation. The voice of pan-Germanism is heard not only in the Austrian press but in the Reichsrath, where on March 18, 1902, Herr Schoenerer, leader of the Pan-German party, concluded a speech with, "Long live the Hohenzollerns!" But the more prudent supporters of the movement, which had its preliminary activity at Sedan and Versailles, exercise their influence less noisily and more effectively by means of international societies. The Pan-German League, founded in 1894, had in the following year 7700 adherents; in 1902 it had in Germany about 200 centres of propaganda, 20,000 active members, and in both Germany and Austria an unknown number of adherents. Its central doctrine is, "Germany is coextensive with the territory in which the German language is spoken"; that is, the amalgamation with the German empire of all Austria west of Moravia and even the Teutonic cantons of Switzerland. Such a state would include over 70,000,000 inhabitants—62,000,000 of German race and speech, 6,000,000 Czechs, and perhaps 2,000,000 of Latin or mixed Slavonic stock. The large non-German element is recognized as a serious impediment to the movement, but an impediment that its supporters deem it worth while to overcome for gaining the political and commercial power that would accrue to a state extending from the North Sea and the Baltic to the Adriatic

and the navigable Danube. Interest in pan-Germanism is augmented by the commercial promise in the projected railways and canals in Austria, as well as by the German railway programme in Asia Minor. It is not believed that the pan-Germanists will seek to realize their dreams before the death of Franz Josef, but when the time for action comes the pan-Germanists will encounter a vigorous opposition. There will undoubtedly be opposition on the part of the German-speaking supporters of the House of Hapsburg and among the Czechs of Bohemia, and it has been pointed out that the very antagonism of these races, the one fearing Slavic absorption and the other German, will lead them to stand together for the integrity of Austria. As a more hopeful solution of the internal affairs of Austria, some have urged the principle of federalism, which is favored by probably half of the Austrian Germans. Against pan-Germanism will probably be arrayed the whole diplomacy of Europe. Naturally France would object to German expansion, and Russia would not allow without strong protest a German advance toward the near East, on which she has expended so large an amount of covetous energy—an advance, moreover, that would encompass large Slavic populations—while Italy would not sit idly by and see "Italia Irredenta" pass hopelessly from her influence. Great Britain, furthermore, in view of the importance of her traffic in the Mediterranean and of the "route to India," could ill afford to witness passively the aggressive ascendancy of the German in those waters.

The "Los von Rom" movement, which by attempting to win over to Protestantism the adherents of the state church, is regarded as a phase of the pan-German movement, continued to gain ground in 1902. As a counter agent a large contingent in the Austrian church raised in that year the cry "Away from the Middle Ages," the idea being to reform the church from within by the substitution of evangelical methods for the dominant Ultramontane influences.

The Heir Presumptive.—The Archduke Franz Ferdinand, nephew of Franz Josef and heir presumptive to the thrones of Austria and Hungary, has been conspicuously unfortunate in aggravating the bitter class feeling in the monarchy. In 1902 he continued an active opposition to the "Los von Rom" movement, which he characterized as anti-patriotic and anti-dynastic. His clerical spirit was further attested in the spring of that year by his failure, when traveling in Italy, to visit the royal family, through fear of displeasing the Pope. And he affronted the German factions in Austria, as well as the Magyars, by choosing a Czech noble as companion at the coronation of Edward VII. An event that may involve far-reaching consequences bearing upon the dynasty of Austria-Hungary was the birth of a son and heir, Maximilian Karl, to the Princess Hohenberg (Sophie, Countess of Chotkowa and Wognin), the morganatic consort of the archduke, on September 30, 1902. It will be remembered that upon her marriage (July 21, 1900) the countess renounced for herself and heirs all rights of succession. But it has been pointed out that at any time the Pope can absolve her from the oath of renunciation. For such absolution she is doubtless striving, and to this end is supported by many Czechs and German clericals. Hungary, moreover, does not admit the validity of the oath in respect to that kingdom. In February, 1902, Franz Ferdinand made a visit to the Czar at St. Petersburg.

Foreign Relations.—For years it has been thought that the disruption of the dual monarchy might follow the death of Franz Josef, and it has been felt that the absorption of the country, particularly Austria, by foreign states would be facilitated through its diverse ethnic elements. To promote harmony within the monarchy, as the best safeguard against eventual dismemberment, has been the main endeavor of the sovereign. With direct bearing on its foreign relations, the monarchy has the problems of pan-Germanism and pan-Slavism and of its ambitions in the Balkan states and along the Adriatic, involving not only the adverse interest of Turkey but doubtless of Russia and Italy as well. The actual relations, however, of Austria-Hungary with foreign powers, on the surface, at least, have continued friendly. In this connection the most prominent event of 1902 was the renewal (June 28) of the Triple Alliance. Although in some respects, especially in Balkan matters, the aspirations of Austria-Hungary and Russia seem permanently in conflict, the friendly relations of the two powers, strengthened by the agreement of 1897, were further improved by a *rapprochement* in 1902. Addressing the Delegations convened at Budapest, on May 7, Franz Josef said: "Our continued friendly agreement with the Russian empire concerning events in the near East is particularly calculated to fortify peace and order in those countries." At the same time the minister for foreign affairs, Count Goluchowski, gave assurances that Austria-Hungary and Russia stood for the maintenance of the *status quo* in the Balkans. The minister also stated that the agreement of 1897 and the *rapprochement* of 1902 were purely verbal; the former, he added, consists of a mutual exchange of views calculated to effect a more easy understanding between the two powers in each case that may arise. Count Goluchowski referred to the *rapprochement* (1901) between France and

Italy, and the alliance (1902) between Great Britain and Japan, as being in the interests of the world's peace. In December, 1902, Count Lamsdorff, Russian minister for foreign affairs, visited the Balkan states, and on the 29th of the month arrived at Vienna. His seeming purpose, aside from gaining a more intimate knowledge of Balkan affairs, was to formulate an Austro-Russian note to the Porte, reiterating the demand for reforms in Macedonia, where conditions had become intolerable. A report which in some quarters received little credence became current in the summer of 1902, that Count von Bülow, the German chancellor, had come to an understanding with Count Goluchowski, whereby the former would discourage in Germany the pan-German movement, and the latter would endeavor to prevent the Poles of Galicia from rendering assistance to the Poles of Prussia. It must be remembered, however, that the pan-German movement had its beginning at Berlin, and probably has the approval of a large and influential element in Germany, while in Austria racial antagonism is already so keen that the government could hardly afford to aggravate it further. Whether the understanding between the two ministers was true or not, one thing becomes more certain, and that is that German and Austrian interests, notwithstanding the Triple Alliance, are growing more and more difficult to reconcile. On December 30, 1902, the Austro-Hungarian ambassador at Rome officially denounced the commercial treaty with Italy, which will cease to be in force at the end of 1903. In 1902 the Austro-Hungarian and American legations at Washington and Vienna, respectively, were raised to the rank of embassies. The King of Roumania visited Franz Josef at Vienna in August, 1902. See INTERNATIONAL RELATIONS.

Strikes.—In February, 1902, a strike, apparently fomented to some extent by anarchists, took place among the Lloyd stokers at Trieste, resulting in a general suspension of business. On the 14th and 15th of the month serious riots occurred, during which about a dozen persons were killed and nearly 100 injured. On the 16th martial law was proclaimed in the city.

At the beginning of the harvest in July, 1902, a strike broke out among the agricultural laborers of eastern Galicia (in the Lemberg region), which soon involved about 200 villages and 100,000 laborers. The strikers were Ruthenians—who constitute the larger part of the population, most of the remainder being Poles—and their discontent appeared to be due to unfavorable economic conditions and especially to nationalistic enthusiasm and prejudice. In general the landowners are Poles, betwen whom and the Ruthenian laborers there has long been serious friction. Upon the importation of laborers and reaping machines from Russian Poland, the strike subsided and ended on August 10. It appears that the Polish landlords, who were doubtless pressed by low prices, had reduced wages to an almost intolerable extent. An uprising of the Ruthenian peasants would embarrass the Vienna government, since they, it is held, are far more loyal to the House of Hapsburg than are the Polish aristocracy. The unrest in Galicia was one of the indications of the increasingly important problem of land tenure in central and eastern Europe—a problem to which the ignorant peasants of Kharkoff and Poltava attempted so violent a solution in the spring of 1902.

AUTOMOBILING, in 1902, continued to attract a great deal of attention from the public, due quite as much to the number of fatal accidents as to any other feature. On account of the propensity of chauffeurs to drive machines along public highways at a dangerous rate, in violation of speed ordinances and in disregard of other vehicles and pedestrians, it became necessary for legislative bodies to fix heavy penalties for offenders. One public good due to the sport, however, is the marked impetus given to the cause of good roads. During 1902 the contests took the form of "reliability runs" and "endurance tests" at long distances over average roads, to a greater extent than in previous years, and became as distinct a feature of competition as track racing. In the run from New York to Boston and return, in October, seventy-five machines of all types started, of which all but seven finished in good condition, those of American manufacture showing the best results. Some of the more notable performances in 1902, with various styles of car, at one mile straightaway, were: P. Owen, 1 minute 17 3-5 seconds, gasoline, 1000 to 2000 pounds, Staten Island; G. C. Cannon, 1 minute 5¼ seconds, steam carriage, Providence, R. I. (world's record); M. Augieres, 46 seconds, gasoline, over 2000 pounds, Dourdan, France (world's record). At one kilometre (.621 of a mile), M. Augieres, 29 seconds, gasoline, over 2000 pounds, Dourdan, France (world's record); P. Owen, 47 seconds, gasoline, 1000 to 2000 pounds, Staten Island; L. S. Thompson, 59 seconds, gasoline, under 1000 pounds, Staten Island; C. H. Metz, 43 3-5 seconds, gasoline motor cycle, Staten Island; S. T. Davis, Jr., 46 1-5 seconds, steam carriage, Staten Island; W. C. Baker, 36 1-5 seconds, electric carriage, Staten Island (world's record). At one mile on a circular track: B. Oldfield, 1 minute 1 1-5 seconds, gasoline, over 2000 pounds, Detroit; P. Owen, 1 minute 19½ seconds, gasoline, 1000 to 2000 pounds, Providence, R. I.; J. F. Duryea, 1 minute 36¾ seconds, gasoline,

under 1000 pounds, Providence, R. I.; G. C. Cannon, 1 minute 7¾ seconds, steam carriage, Brighton Beach, N. Y. Abroad, the most important of the long-distance races, from Paris to Vienna (825 miles) was won by M. Renault in 15 hours 22 minutes.

AYRES, ALFRED, the pseudonym of Thomas Embley Osmun (*q. v.*).

AZORES, a group of islands in the north Atlantic, forming administratively an integral part of Portugal, have an estimated area of 1005 square miles. The population, according to the provisional returns of the census of December 1, 1900, was 316,615.

BAALBEK. See ARCHÆOLOGY (paragraphs on Syria and Palestine).

BABCOCK, JOSEPH WEEKS, congressman from Wisconsin and chairman of the national Republican congressional committee, has drawn the public attention to himself by his advocacy of a reduction of the tariff on articles that enter largely into American exports, or that are controlled in the domestic market by trusts or combinations of capital. He was born at Swanton, Vt., March 6, 1850, and was taken by his parents to Iowa when five years old. He received an academic education at Cedar Falls, Ia., and in 1881 removed to Necedah, Wis., where he engaged extensively in the lumber industry. He was elected to the Wisconsin State assembly as a Republican in 1888 and 1890, and was elected a member of the Fifty-third Congress from the third Wisconsin district in the fall of 1892. Since that time he has served continuously in Congress, and since 1895 as chairman of the committee on the District of Columbia, a position of great importance, the holder of which is possessed of peculiar powers in the government of the District. In 1895 he was also made chairman of the national Republican congressional committee, and has managed five successive congressional campaigns with conspicuous success. After the retirement of David B. Henderson as speaker was announced, in September, 1902, Congressman Babcock was looked upon as one of the strongest candidates for his place, but withdrew in favor of Joseph G. Cannon.

BABYLONIA. See ARCHÆOLOGY (paragraph Babylonia and the East).

BACH, LEONHARD EMIL, German pianist and composer, died February 15, 1902. He was born in Posen, Prussia, March 11, 1849, studied music under Liszt and Kullak, and became a teacher in the latter's Berlin academy in 1869. In 1874 he was made court pianist to Prince George of Prussia and later to the German emperor, and was raised to the Legion of Honor. Besides many pianoforte compositions he composed the short operas *Irmengarda* (1892), *The Lady of Longford* (1894), and *Des Königs Garde* (1895).

BACTERIA. Several new microorganisms were discovered during 1902, and many investigations are under way. The bacillus of the summer diarrhœa of infants has been isolated by C. W. Duval and B. H. Bassett, students working under the direction of Prof. W. H. Welch, of Johns Hopkins University. This bacillus is similar to if not identical with the bacillus of dysentery discovered by Shiga, but its identity is still *sub judice*. J. Ferran, a Spaniard, has reported the discovery of a bacillus in the sputum of tuberculous patients which he believes to produce pretubercular lesions and has therefore named the phthisogenic bacillus. After growing for a time in the tissues this bacillus becomes converted into the bacillus tuberculosis. On the other hand, it has been found to be identical with the bacillus coli communis, as isolated from the intestine of the dog. The discovery is received with some reservation. Ghon, Pfeiffer, and Sederl have studied the micrococcus catarrhalis. This organism is not found constantly in affections of the respiratory passages, but has been detected in a certain number of cases of influenza, and particularly in bronchitis and broncho-pneumonia. Bacteria in relation to money have been the subject of investigations carried out at the Hospital du Bey, Algiers, and it was found that almost all varieties of bacteria occur upon currency. Metal, however, has an inimical influence upon them, gold having less than other metals. Typhoid bacilli lived from five to seven days on a gold piece, and less than eighteen hours on other metals. Scotch banks, unlike the Bank of England, reissue old banknotes again and again, regardless of the uncleanness of the practice. On one note 30,000 microbes have been counted in the space that a sixpence would cover. See ANTITOXIN, TUBERCULOSIS, and VITAL STATISTICS.

BAER, GEORGE FREDERICK, president of the Philadelphia and Reading Railroad, came into prominence during 1902 as the leader of the operators in the great anthracite coal strike. Mr. Baer was born in Somerset County, Penn., September 26, 1842, and was educated at Franklin and Marshall College. In 1861 he and his brother acquired the Somerset *Democrat*, which he edited for a year, meanwhile studying law. He served in the Civil War from 1862 to 1863, but left the army after the battle of Chancellorsville and was admitted to the bar in 1864. His practice brought him into connection with railroads, and he has been for many years

the confidential legal adviser of J. Pierpont Morgan in Pennsylvania. Thus in 1901 he was elected president of the Philadelphia and Reading Railroad, in the reorganization of which he had been prominent in 1893, and of the Central Railroad Company of New Jersey. The former road, as chief owner of the Philadelphia and Reading Coal and Iron Company, had the largest interest in the coal mines of the anthracite region, for which reason, after the rejection of the demands formulated by the Shamokin convention on March 18, Mr. Baer was chosen spokesman for the various operators. For his conduct in this position he was harshly censured on account of his statement that there was "nothing to arbitrate" and his refusal to recognize the United Mine Workers of America, declaring that the operators would treat with their employees only as individuals. The result was that the strike lasted from May 12 to October 21, threatening to cause great suffering in the large cities not only by the prohibitive price of coal but by its actual scarcity. After numerous formal and informal protests by politicians and others and the interference of President Roosevelt, the operators consented to the appointment by the President of an investigating commission. See STRIKES (paragraph Anthracite Coal Strike).

BAGDAD RAILWAY. See TURKEY (paragraph Bagdad Railway).

BAHAMAS, a chain of 20 inhabited and many uninhabited islands in the Atlantic Ocean off the southeastern coast of Florida, constitute a British colony. Their area aggregates 5450 square miles, and the population in 1901 was 53,735, of whom four-fifths are negroes. Nassau, on New Providence Island, is the capital. The administration is in the hands of a governor, Sir Gilbert Thomas Carter, since 1897, assisted by executive and legislative councils, and an elected representative assembly. The revenue, accruing largely from customs, amounted in 1901 to £77,780, and the expenditure £81,135. The public debt at the end of that year amounted to £111,626. The imports in 1901 amounted to £324,720, and the exports, the value of which is increasing annually, to £176,884. The chief articles of export are sponges, valued at £100,118 in 1901; fruits, principally pineapples, sent mostly to the United States and valued in 1900 at £59,191; and sisal fibre, plantations of which covered 22,341 acres in 1901. Mahogany, logwood, ebony, and other woods, and tobacco, castor-oil plants and cotton are also produced, and the canning industry is of growing importance. The variety of its resources has kept the colony from falling into the poor industrial condition prevailing in the more southerly sugar-producing islands.

BAILEY, PHILIP JAMES, the author of *Festus*, died September 6, 1902, at Nottingham, England. Born at Nottingham, April 22, 1816, he was in residence for two sessions at Glasgow, from 1833 read law, in 1835 was admitted a member of Lincoln's Inn, and in 1840 called to the bar. He never entered professional practice. A versifier from the age of ten, he began in 1836 his monumental *Festus*, which, published in 1839, captivated the world of letters, drew from Tennyson and Browning unstinted praise, and lived through eleven English and thirty American editions. This dramatic epic of seven hundred closely packed pages was in theme and treatment most ambitious. Its twelve divisions expound the inter-relationship of God and man, the benign power of the Deity, immortality, and a philosophy of conduct based on the combination of reason and faith. Its *personæ* range from Festus himself —in career as in name akin to Faustus—to virtues, angels of varied ranks, cherubim, seraphim, Lucifer, and the Trinity. This pageantry is seldom clearly managed; the action shifts from earth to heaven and thence to "anywhere"; and later interpolations, deductions, and additions augmented the incoherency of the original volume. The "jubilee edition" of 1889 has good need of its explanatory preface. Yet the work is spacious, and does not want for such quotable lines as

> "We live in deeds, not years; in thoughts, not breaths;
> In feelings, not in figures on a dial.
> We should count time by heart-throbs. He most lives
> Who thinks most, feels the noblest, acts the best."

It was satirized in Aytoun's *Firmilian*, and from the sixties has been little explored except by the special investigator. It remained, however, the isolated achievement of its author, whose *Angel World* (1850), *Universal Hymn* (1867), and other subsequent efforts are commonplaces which tend only to oppress the earlier poem.

BALDWIN, STEPHEN LIVINGSTON, an American missionary, died in Brooklyn, N. Y., July 28, 1902. He was born in Somerville, N. J., in 1835, and when a young man went to China as a missionary in the service of the Methodist Episcopal Church. His labors in the missionary field extended over a period of more than twenty years and were marked by valuable achievements in educational and religious work. The first movable metal type in China was introduced by him, and he rendered valuable assistance in the translation of the Bible into the Fu-Chan dialect. After returning

to the United States he held pastorates in Newark, N. J.; Nyack, N.Y., and Brooklyn, and was a prominent figure in the Ecumenical Conference that assembled in New York in 1900. In 1888 he became recording secretary of the Missionary Society of the Methodist Episcopal Church, and held that office until his death. His literary efforts included many lectures on Eastern questions and customs, and a volume entitled *Foreign Missions of the Protestant Churches.*

BALFOUR, Rt. Hon. ARTHUR JAMES, who became premier of Great Britain in July, 1902, was born in Scotland, July 25, 1848. He was educated at Eton and at Trinity College, Cambridge, and was elected to the House of Commons as a Conservative in 1874. In Parliament he at first attracted little attention, except as a member of Lord Randolph Churchill's "Fourth Party" of dissentient Tories; but he had valuable political experience as private secretary to his uncle, Lord Salisbury, with whom he went to the Berlin Congress of 1878. His publication of *A Defence of Philosophic Doubt* in 1879 gained him a reputation for literary and argumentative ability, but it was not until a crisis in the Irish question that his real character and parliamentary importance were discovered. Previous to his appointment as chief secretary for Ireland in 1887 he had been president of the Local Government Board and secretary for Scotland, but the state of Ireland in 1887 called for exceptional qualities, both to control the agrarian agitation in that island and to repel the attacks of Irish Nationalist members in the House. Mr. Balfour, by his remarkable display of energy and self-control, made futile the onslaughts of the Nationalists, and firmly enforced the laws in Ireland. But although an opponent of Mr. Gladstone's Home-Rule Bill, he was instrumental in passing measures to remedy the Irish agricultural distress. His legislation provided for drainage, light, railways, and a plan of land purchase. In 1891 he was chosen Conservative leader in the House of Commons. After the defeat of home rule and the overthrow of Lord Rosebery's government in 1895, he resumed the leadership of the Commons, his office being that of first lord of the treasury. In the administration his relations with the Liberal-Unionist members, especially Mr. Chamberlain, have been cordial. The resignation of Lord Salisbury on July 11, 1902, was followed immediately by the selection of Mr. Balfour for the premiership. The new premier has thus far filled his office with ability, though he was chiefly responsible for the British alliance with Germany in the attempt to discipline Venezuela, a union that was highly unpopular in England. In 1895 he published *The Foundations of Belief.* Personally he is one of the most popular of living British statesmen.

BALIZE. See BRITISH HONDURAS.

BALKAN PENINSULA is that part of southeastern Europe which lies between the Black and Ægean seas on the east and the Adriatic and Ionian on the west. Roumania, though not geographically a part of the peninsula, is usually regarded as one of the "Balkan states."

As a general thing, local outbreaks and rumors of more widespread uprisings appear each spring in the Balkans. This was true in 1902, but the outbreaks and rumors persisted during the year, so that at its close the chronic unrest was more disconcerting than at any time in a number of years. Although there is no doubt of Russia's ambition to extend her dominion southward, she arrived at an agreement with Austria-Hungary in the spring of 1902, in which both governments expressed their desire for the maintenance of the Balkan *status quo.* But Count Goluchowski, the Austro-Hungarian minister for foreign affairs, addressing the delegations in May, said this *status quo* could not be considered a final solution of the problem. He stated that Turkey had been warned that in the Near East "cruelty and indiscriminate violence could only make things worse," and, he added, the "permanent agitation" there might finally call forth in protest the "combined strength" of Austria-Hungary and Russia. Although Turkish outrages in Macedonia increased rather than diminished as the year advanced, it appeared that by the end of 1902 the Sultan realized that in his accustomed connivance at Mussulman outrages he could no longer play off against each other Russia and Austria-Hungary. This view was emphasized when, late in December, Count Lamsdorff, the Russian minister for foreign affairs, visited Belgrade, Sofia, and finally Vienna (December 29) for the purpose of studying the Balkan question and then of drafting with the Austro-Hungarian government a joint note of protest to the Porte. More difficult of solution even than the problem of Ottoman misrule in Macedonia and Albania are questions raised by the deep-seated antipathies existing between the Christian peoples of the Balkans. Servia and Bulgaria are ambitious of expansion, Albania wants autonomy, which in her case would probably mean even greater anarchy than obtains at present, while the people of Macedonia are divided between a desire for Bulgarian annexation and for self-government. Italy, moreover, still hopes for dominion on the eastern coast

of the Adriatic, and Greece looks longingly at Epirus. For the Macedonian Committee and the outbreaks in Macedonia and Albania, see TURKEY; see also BOSNIA AND HERZEGOVINA; BULGARIA; GREECE; MONTENEGRO; ROUMANIA; and SERVIA.

BALLOONS. See AERIAL NAVIGATION.

BALUCHISTAN, a country on the Arabian Sea between British India and Persia, has an estimated area of 134,000 square miles and a population of about 810,000. The country is under British protection. Independent Baluchistan (population, about 460,000) comprises a tribal confederacy, at the head of which is the Khan of Khelat (Mir Mahmud since 1893), who, however, is amenable to the advice of the British political agent; various other territories are practically administered by British officials; and in the northeast is British Baluchistan, which is directly under British rule. No part of Baluchistan has foreign relations except with the Indian government. The annual revenue of the Khan of Khelat comprises a subsidy of 100,000 rupees, a quit-rent of 34,000 rupees (for territories under British supervision), and 30,000 rupees in lieu of transit tolls on merchandise in the Bolan Pass, all granted by the Indian government; in addition taxation in kind may sometimes reach a value of 500,000 rupees. (The rupee is worth 32.4 cents.) The leading exports include wool, hides, madder, dried fruit, bdellium, and dates. The trade is largely with British India; this commerce, excluding that over the Sind-Pishin Railway, has been estimated, in rupees, as follows: 1900, imports 787,350, and exports 1,455,310; 1901, 660,930 and 1,152,970 respectively. Trade by the British road in the Nushki district increased about ten-fold from 1896 to 1901. In September, 1902, it was announced that Lord George Hamilton, secretary of state for India, had sanctioned the construction of a railway, to cost about 7,000,000 rupees, from Quetta (which has rail connection with the Indian system) to Nushki, 82 miles distant. This western railway extension on the part of the British, small though it is, called forth unfavorable comment in the Russian press. The *Novoe Vremya* (St. Petersburg) insisted that "Russia must reply to the construction of this railway by immediately building lines of her own through Persia."

BANKRUPTCY. Commercial failures for 1902, according to Dun's *Review*, were 11,615 in number with $117,476,769 of defaulted liabilities. This is a slight increase over 1901, with 11,002 failures, and $113,092,376 liabilities. In manufacturing there were 2749 failures for $47,188,889, against 2441 in 1901 for $44,960,983. Trading failures numbered 8249, with liabilities of $56,181,480, compared with 7965 for $52,060,640 in 1901. Other failures numbered 617, for $14,206,400, against 596 in 1901, for $16,070,753. Failures of banks and other financial institutions were 67, involving $31,910,507, compared with 74, with liabilities of $18,018,774 in 1901. With the growth in volume of business the ratio of bankruptcies to solvent payments through clearing-houses has declined quite steadily since 1896. In 1902 the ratio of defaulted liabilities to the total solvent payments was $0.99 to $1000; in 1901 it was $0.95, and in 1899, $0.97, these being the only years, since 1873, showing a lower "financial death rate" than 1902. The amount of defaulted liabilities per firm has also declined during the past decade. The proportion of liabilities to the total number of firms doing business was, for 1902, $94.85; for 1901, $94.33; for 1900, $119.63; for 1899, $78.62. The years 1899 and 1901 again are the only years that show a smaller proportion than is shown by the record of 1902. It would seem from these figures that with the integration of industry, meaning greatly increased capitalization and volume of business for each individual firm, there has been a great improvement in the soundness of business, manifesting itself not only in fewer failures, but, what is more important, in a smaller proportionate total of liabilities. The failures for 1902 were considerably increased because of the short corn and cotton crops of 1901, the decrease in foreign exports, and the unprecedented labor disturbances. These evil effects were, in large part, overcome by the abundant crops of 1902 and the remarkable extension of the domestic demand, holding prices high and keeping business booming. The showing for New England is especially favorable, except for Rhode Island, which shows an increase of liabilities of about 50 per cent. In Pennsylvania naturally the losses were much heavier than the normal, on account of the coal strike —liabilities being about 50 per cent. heavier. Canadian defaults for 1902 numbered 1101, with liabilities of $10,934,777. The number is smaller than it has been for many years, and the amount is below the average for several years, though slightly above the amount, $10,811,671, reported for 1901. The classification of commercial failures in 1901 and 1902, according to Dun's *Review*, is given on the two pages following.

National Bankruptcy Law.—The National Bankruptcy Act of July 1, 1898, enacted to provide uniformity in bankruptcy law in all places under the jurisdiction of the United States, provides that any person who owes debts, except a corporation, may become a voluntary bankrupt upon complying with certain conditions, among which is to make a sworn statement of the amount and kinds of property owned by the petitioner. The necessity for a uniform law co-extensive with the country is

States.	Total 1902.			Total 1901.	
	No.	Assets.	Liabilities.	No.	Liabilities.
Maine	221	$821,049	$1,600,404	192	$1,250,715
New Hampshire	94	340,154	714,283	67	771,298
Vermont	52	140,501	252,160	43	308,758
Massachusetts	1,002	5,378,447	12,527,542	1,125	17,021,717
Connecticut	259	993,176	1,842,697	334	2,606,302
Rhode Island	144	600,916	1,266,594	105	831,361
New England	1,772	$8,274,243	$18,203,680	1,866	$22,790,151
New England, 1901	1,866	8,530,008	22,790,151	.....	.....
New York	1,455	$8,782,885	$26,034,750	1,400	$26,560,127
New Jersey	187	2,056,540	3,514,505	183	3,016,318
Pennsylvania	731	6,257,055	10,830,613	664	7,359,145
Middle	2,373	$17,095,480	$40,379,868	2,247	$36,935,590
Middle, 1901	2,247	16,093,929	36,935,590	.....	.....
Maryland	169	$1,919,217	$2,994,762	205	$3,794,285
Delaware	26	74,855	177,039	19	134,208
District of Columbia	48	939,294	959,351	29	503,549
Virginia	221	2,061,049	2,712,043	174	1,262,477
West Virginia	69	181,329	350,909	67	308,485
North Carolina	82	358,513	532,684	146	1,117,162
South Carolina	112	1,067,403	1,489,751	116	912,213
Florida	173	683,296	1,206,779	103	548,872
Georgia	292	1,742,301	2,798,208	268	2,643,320
Alabama	226	641,947	1,260,169	173	784,746
Mississippi	131	294,726	589,505	152	760,710
Louisiana	152	620,715	1,125,957	145	987,133
Tennessee	277	996,578	2,000,099	219	1,152,143
Kentucky	170	804,717	1,100,415	202	1,222,312
South	2,148	$12,385,940	$19,297,671	2,018	$16,131,615
South, 1901	2,018	10,413,784	16,131,615	.....	.....
Arkansas	252	$885,096	$1,357,736	222	$1,044,898
Texas	528	1,867,411	2,943,984	238	1,870,671
Missouri	393	1,845,899	2,782,330	274	1,920,627
Southwest	1,173	$4,598,406	$7,084,050	734	$4,836,196
Southwest, 1901	734	3,136,233	4,836,196	.....	.....
Ohio	436	$2,677,848	$4,174,414	473	$3,811,459
Indiana	231	1,113,764	1,437,025	279	1,834,307
Michigan	105	922,163	1,404,200	196	1,506,933
Illinois	1,138	4,605,471	11,531,614	1,201	11,063,922
Wisconsin	184	756,482	1,276,292	170	1,188,850
Central	2,094	$10,075,728	$19,823,545	2,319	$19,427,471
Central, 1901	2,319	10,109,665	19,425,471	.....	.....
Minnesota	193	$485 428	$839,579	204	$3,432,561
Iowa	274	1,099,891	1,519,302	314	1,509,643
Nebraska	100	350,776	1,004,436	48	139,856
Kansas	233	346,240	587,306	149	552,865
Indian Territory	85	150,724	269,759	47	304,489
Oklahoma	135	401,435	596,181	44	283,110
Montana	54	224,590	360,207	52	1,079,709
North Dakota	12	97,542	120,755	22	141,469
South Dakota	15	60,967	95,634	13	58,332
Colorado	123	1,224,667	1,781,359	81	674,453
Wyoming	14	13,100	28,400	4	14,000
New Mexico	.....	.....	.....	3	7,300
West	1,238	$4,455,360	$7,201,918	981	$8,197,792
West, 1901	981	5,300,803	8,197,792	.....	.....
Utah	73	$176,587	$519,200	50	$177,054
Idaho	52	91,100	173,050	40	111,050
Arizona	7	31,050	58,281	2	23,376
Washington	164	580,511	1,001,437	144	1,208,888
Oregon	124	198,206	396,564	175	1,096,905
California	390	709,596	3,268,535	422	2,146,688
Alaska	7	61,350	68,970	4	11,600
Pacific	817	$1,848,400	$5,486,037	837	$4,775,561
Pacific, 1901	837	1,871,518	4,775,561	.....	.....
Aggregate	11,615	$58,729,557	$117,476,769	.....	.....
Aggregate, 1901	11,002	55,455,940	113,092,376	.....	.....

States.	CLASSIFIED FAILURES, 1902.							
	Manufacturing.		Trading.		Other Com'l.		Banking.	
	No.	Liabilities.	No.	Liabilities.	No.	Liabilities.	No.	Liabilities.
Maine	40	$539,107	175	$1,045,146	6	$16,151	.....	.....
New Hampshire	18	195,273	71	499,780	5	19,230	.....	.....
Vermont	17	62,340	34	185,439	1	4,881	.....	.....
Massachusetts	382	6,117,099	550	5,252,410	70	1,158,033	.....	.....
Connecticut	77	1,059,501	172	707,643	10	75,553	2	$25,661
Rhode Island	30	196,207	108	1,040,579	6	27,808	.....	.....
New England	564	$8,171,527	1,100	$8,730,997	98	$1,301,156	2	$25,661
New England, 1901	562	9,837,966	1,176	9,282,025	128	3,670,160	5	1,856,910
New York	607	$13,182,470	728	$9,189,802	120	$3,662,478	9	$20,861,235
New Jersey	57	1,958,938	118	1,338,395	12	217,172	2	97,205
Pennsylvania	233	5,947,553	463	4,108,286	35	774,774	3	59,522
Middle	897	$21,088,961	1,309	$14,636,483	167	$4,654,424	14	$21,018,072
Middle, 1901	733	19,089,766	1,392	12,799,729	122	5,046,095	11	11,690,949
Maryland	45	$969,474	116	$1,884,695	8	$240,593	9	$423,000
Delaware	8	145,100	18	31,939	.....	.....	.....	.....
District of Columbia	14	395,871	29	335,966	5	227,514	.....	.....
Virginia	33	562,778	179	1,073,834	9	1,075,431	.....	.....
West Virginia	6	53,499	60	291,310	3	6,100	.....	.....
North Carolina	8	150,450	74	382,234	.....	.....	1	15,000
South Carolina	12	493,700	99	995,302	1	749	.....	.....
Florida	30	320,021	138	549,940	5	336,818	2	131,661
Georgia	36	514,433	245	1,463,330	11	820,445	2	85,000
Alabama	17	99,341	207	1,151,781	2	9,047	2	143,500
Mississippi	3	11,096	128	578,409	.....	.....	.....	.....
Louisiana	17	107,176	132	699,114	3	319,667	.....	.....
Tennessee	25	1,045,097	245	929,998	7	25,004	.....	.....
Kentucky	15	180,123	145	663,536	10	256,756	4	39,735
South	269	$4,948,159	1,815	$11,031,388	64	$3,318,124	20	$837,896
South, 1901	225	5,059,482	1,729	8,291,922	64	1,280,211	21	2,039,844
Arkansas	13	$175,233	237	$1,178,678	2	$3,825	1	$121,000
Texas	17	354,548	505	2,570,963	6	18,473	2	68,000
Missouri	64	1,285,724	315	1,219,514	14	277,092	2	44,621
Southwest	94	$1,815,505	1,057	$4,969,155	22	$299,390	5	$233,621
Southwest, 1901	60	635,211	660	3,914,358	14	286,627	1	143,000
Ohio	143	$2,195,727	276	$1,353,858	17	$624,829	3	$2,552,500
Indiana	48	619,840	179	812,490	4	4,695	3	201,000
Michigan	18	270,983	86	1,132,217	1	1,000	2	4,122,000
Illinois	356	4,867,977	593	3,091,937	189	3,571,700	6	1,268,000
Wisconsin	41	467,555	141	808,489	2	5,248	1	113,000
Central	606	$8,422,082	1,275	$7,193,991	213	$4,207,472	15	$8,261,500
Central, 1901	567	7,630,509	1,589	8,279,241	213	3,515,721	24	1,646,207
Minnesota	43	$179,561	142	$582,749	8	$77,269	.....	.....
Iowa	48	492,800	219	945,802	7	80,700	5	$1,178,650
Nebraska	6	8,438	90	880,498	4	115,500	2	63,000
Kansas	30	86,339	194	491,606	9	9,361	.....	.....
Indian Territory	1	2,500	83	266,259	1	1,000	.....	.....
Oklahoma	1	300	134	594,881	.....	.....	.....	.....
Montana	7	105,748	47	254,459	.....	.....	.....	.....
North Dakota	1	2,846	11	117,909	.....	.....	.....	.....
South Dakota	.....	.....	15	95,634	.....	.....	.....	.....
Colorado	15	551,517	105	1,174,606	3	55,236	.....	175,000
Wyoming	.....	.....	14	28,400	.....	.....	.....	.....
New Mexico	.....	.....	.....	.....	.....	.....	.....	.....
West	152	$1,430,049	1,054	$5,432,808	32	$339,066	8	$1,416,650
West, 1901	108	1,200,411	848	5,361,175	25	1,636,206	8	182,551
Utah	11	$306,700	61	$201,500	1	$11,000	.....	.....
Idaho	9	105,000	43	68,050	.....	.....	.....	.....
Arizona	2	19,593	5	38,688	.....	.....	.....	.....
Washington	41	404,554	116	569,683	7	27,200	2	$5,100
Oregon	28	78,168	92	297,973	4	20,423	.....	.....
California	74	343,091	308	2,898,799	8	26,645	1	132,007
Alaska	2	55,500	4	11,970	1	1,500	.....	.....
Pacific	167	$1,312,606	629	$4,086,663	21	$86,768	5	$137,107
Pacific, 1901	186	1,507,638	621	2,632,190	30	635,733	1	459,313
Aggregate	2,749	$47,186,889	8,249	$56,081,480	617	$14,206,400	67	$31,910,507
Aggregate, 1901	2,441	44,960,983	7,965	52,060,640	596	16,070,753	74	18,018,774

obvious, but the looseness of the statute was an incentive for dishonest debtors, by fraudulent returns of property, to avoid paying their obligations. The abuses were so great that in the Fifty-seventh Congress a bill was introduced in the House by Mr. George W. Ray, of New York, amending the law in several points. The more important amendments are briefly as follows: (1) In order to make the law more uniform and equitable where insolvency is the question at issue, assets claimed to be exempt shall not be counted in ascertaining the amount of the debtor's property; (2) payment made by the bankrupt in the ordinary course of business within four months preceding bankruptcy are not classed as preferences, and are not required to be refunded by the creditor before the remaining portion of his debt can be considered, as is the case under the existing law; (3) the bankruptcy law is extended to the three cases: (*a*) a general assignment, (*b*) a voluntary accounting of an insolvent partnership by action brought by one of the partners, (*c*) an application for a receivership of an insolvent corporation. (This will prevent "in-the-family" receiverships and accountings in the last two cases); (4) the application of the law to corporations and companies not before included is extended, and provision is made that no discharge of such corporation or company shall free the officials or stockholders from liability under State laws; (5) the meaning of the law is defined more clearly, and provision is made for four additional grounds for refusal of a discharge in bankruptcy: (*a*) obtaining property on credit on materially false statements, (*b*) making a fraudulent transfer of property, (*c*) having been granted or denied a petition in bankruptcy within six years, and (*d*) having refused to obey the lawful orders of the court or having refused to answer material questions approved by the court; (6) liabilities for frauds, etc., shall not be discharged by the law; (7) other amendments provide for greater expedition and accuracy in the operation of the law; (8) section twelve provides that the claims of preferred creditors shall not be allowed unless such creditors shall surrender all preferences, conveyances, transfers, assignments, etc., which they may have received. This bill passed the House June 17, 1902, and was referred to the Senate committee on judiciary, from which it was reported early in the second session with some minor amendments. The amended bill quickly passed the Senate.

BANKS—BANKING. *Banking Expansion.*—In an address delivered on October 31, 1902, Hon. Frank A. Vanderlip expressed his apprehension at the large expansion of banking credits within the last few years. It appeared, he said, from reports of the comptroller of the currency that deposits in all national banks aggregated at the beginning of 1899, $3,226,000,000, while in September, 1902, the deposits aggregated $4,527,000,000. Against these deposits the banks held in specie or legal tender $509,000,000 in 1899 and $508,000,000 in September, 1902. In other words, there had been an expansion of credits amounting to $1,300,000,000 with no corresponding reserves. Now in the same time he estimated that the deposits of other banks—State banks, trust companies, savings banks, and private banks—had probably increased not far from $3,000,000,000, and there was little likelihood that their gold and legal tender reserve was materially larger than, if as large as, at the beginning of 1899. There was then in the last four years an increase in the total bank deposits of the country of over $4,000,000,000, accompanied by no increase in specie and legal tender holdings. In accounting for this dangerous tendency, Mr. Vanderlip believed that it was mainly caused by the formation of great industrial establishments out of smaller ones. For these industrial formations converted stocks of unincorporated properties, which were formerly largely held closely or as fixed investments, into marketable securities, which were then made the basis of loans, and therefore of increased deposits, and which in general entered actively into the system of financial operations. Another contributing influence he found in the large expenditures of corporations, and particularly of railroads, for betterments and extensions. For these improvements new credits were commonly created while the capital representing them was converted into a fixed form of investment yielding comparatively small returns and then often only in future years. By this method much liquid capital was withdrawn, the corporations resting and relying upon the future rather than upon the present. Owing to these and other causes, the national banking reserve fell from 33 per cent. in 1899 to 21 per cent. in September, 1902. In commenting upon this address, the New York *Journal of Commerce* stated on November 6: "On the face of this record the fact stands out very clearly that the last four years have witnessed an inflation in bank credits without any parallel in our history. It is an elementary proposition that the only security which can be provided against the consequences of inflation is to be found in specie redemption for all liabilities. But in the present case, obviously, no such security exists."

Bond Security.—The action of the secretary of the treasury in October, 1902, in ruling that State and city bonds might be accepted by the government in lieu of national bonds as security for public deposits, was thought by many conservative financial journals to constitute an untoward precedent. It was admitted that the

necessity of relieving the monetary stringency had been acute, and that the bonds accepted were unquestionably good; but it was asserted that since the treasury's acceptance, or more properly endorsement of the bonds, aided their general investment standing, there would be the strongest sort of pressure brought to have doubtful public bonds accepted and perhaps to have private securities similarly accepted. "Let once a monetary convulsion be imminent," said the *Journal of Commerce,* "and the precedent once established will be recalled with increasing force, and we may be hurried headlong to a note currency based upon bond security where the bonds have not even the merit of unquestionable soundness, and where the treasury will be charged with the onerous and ungrateful duty of discriminating between different kinds of corporation securities."

Resources of Banks in the United States.—The statistics for banks of all kinds in the States, Territories, and insular possessions of the United States, as compiled by the comptroller of the currency from reports made to him on or about June 30, 1902, show aggregate resources of $13,363,865,818, a gain over the preceding year of $1,006,388,442. The population of the United States and its possessions, estimated by the government actuary on June 1, 1902, was 88,003,000, so that the average per capita resources of all its banks was $151.86, as against $158.79 in 1901. For the United States proper, the per capita resources of all banks were estimated at $179.74 in 1901 and $168.96 in 1902. As between the several classes of banks, the average per capita in 1902 was made up as follows: National, $76.20; State, $28.82; loan and trust companies, $25.16; savings, $36.70; and private, $22.08. The largest per capita resources of all banks were in the New England States, where the per capita was $354.86. The Eastern States followed with a per capita of $351.37, and then came in order the Pacific States with $197.58, the Middle States with $128.72, the Western States with $89.94, and the Southern States with $36.88. The Southern States possess, according to the number of inhabitants, less than one-half the banking resources of any other section of the country; hardly one-tenth of those of the New England or Western States, and hardly more than one-fifth of the average banking resources of the country. Savings banks in the New England States possess by far the largest per capita resources, and national banks and loan and trust companies have the largest per capita resources in the Eastern States. Massachusetts leads all the States in the per capita resources of all its banks and its loan and trust companies. From the 4535 national banks and 7889 other banks in the United States and its possessions, according to the comptroller of the currency, it appears that the aggregate resources of all national banks were $6,008,754,975, and of other banks, $7,335,110,843. It must be remembered, however, that the returns for national banks are complete in all respects, while the reports of State and private banks are very incomplete, so the relative strength of national banks is really much less than is indicated by the figures given. The loans of all the 12,424 banks reported were $7,189,109,761; United States bonds were held to the extent of $523,246,564; other bonds to the amount of $2,516,179,995; and cash to the extent of $848,103,695. The capital of these banks was $1,201,611,762; surplus and profits, $1,096,887,247; deposits, $9,228,689,111; and aggregate resources, $13,363,865,818. Reports received from State banks showed an average dividend payment of 8.9 per cent., and an average rate of 8.97 per cent. payment by loan and trust companies. By sections, the capital stock of all banks reported was: New England States, $152,812,129; Eastern States, $429,276,989; Southern States, $137,977,776; Middle States, $349,362,905; Western States, $61,197,065; Pacific States, $65,492,087; and the insular possessions, $5,492,811. Loan and trust companies were found only in the New England States, the Eastern States, and the Middle States. The total capital stock of all trust companies was $179,732,581, of which $116,022,892 was issued by New York and Pennsylvania companies. Private companies obtained most largely in the Middle States, their capital there aggregating $15,865,404, as against $22,963,614 for the United States. With the exception of less than a million dollars, the entire capital stock of savings banks was found in Iowa and California, the capital of such institutions in these States being, respectively, $10,311,600 and $7,879,205. In the ten years from 1892 to 1902, the loans of all banks in the United States increased from $4,337,000,000 to $7,169,000,000; cash on hand, from $586,000,000 to $839,000,000; capital stock from $1,071,000,000 to $1,198,000,000; and individual deposits from $4,665,000,000 to $9,082,000,000. The table on the following page, compiled from figures published by the comptroller of the currency, shows by States and by divisions of States, the per capita resources of each class of banks and of all banks in the United States and its possessions on or about June 30, 1902, and shows also the total resources of all banks in 1902, and the total resources in millions of dollars of all banks on or about June 30, 1901.

For further details regarding each class of banks in the United States, as compiled by States, see LOAN AND TRUST COMPANIES; NATIONAL BANKS; PRIVATE BANKS; SAVINGS BANKS; STATE BANKS.

States and Territories.	1902. Average Per Capita in— National Banks.	State Banks.	Loan and Trust Companies.	Savings Banks.	Private Banks.	All Banks. Resources.	Average Per Capita.	1901. Total Resources of All Banks in Millions.
NEW ENGLAND STATES.								
Maine	$67.54	.....	$23.58	$109.25	.....	$140,460,996	$200.37	$134.4
New Hampshire	67.35	$5.21	.....	168.79	.....	101,128,010	241.35	97.4
Vermont	76.41	.....	.....	131.20	.....	71,834,669	207.61	69.0
Massachusetts	159.35	.....	54.67	203.80	.....	1,222,133,895	417.82	1,203.1
Rhode Island	98.44	2.98	155.86	170.18	.....	191,077,578	427.46	182.2
Connecticut	100.75	11.39	15.74	216.55	.....	325,145,588	344.43	314.7
Total	$122.32	$2.47	$45.14	$184.93	.....	$2,051,780,736	$354.86	$2,000.7
EASTERN STATES.								
New York	$205.66	$48.16	$143.04	$154.91	$0.40	$4,162,261,875	$552.17	$4,065.0
New Jersey	69.78	6.37	47.49	38.60	.....	320,917,337	162.24	272.5
Pennsylvania	126.57	19.38	58.03	20.07	1.37	1,470,149,621	225.42	1,289.2
Delaware	63.31	7.86	15.27	7.65	.....	17,784,587	94.09	26.2
Maryland	90.10	9.03	16.42	55.16	.76	209,198,864	171.47	197.3
District of Columbia	103.21	.....	71.49	5.32	.....	52,566,999	180.02	47.4
Total	$150.28	$29.01	$89.88	$81.47	$0.73	$6,232,879,283	$351.37	$5,897.7
SOUTHERN STATES.								
Virginia	$27.86	$20.98	.....	.....	.....	$92,608,105	$48.84	$81.0
West Virginia	33.19	39.55	.....	$0.69	.....	73,731,540	73.43	64.4
North Carolina	9.26	7.41	.....	1.50	$0.72	36,849,871	18.89	33.3
South Carolina	9.40	10.45	.....	.....	.....	27,381,441	19.85	25.7
Georgia	13.25	19.99	.....	.....	.15	76,749,252	33.39	71.4
Florida	22.10	12.19	.....	.....	.....	19,101,722	34.29	18.2
Alabama	13.21	3.19	.....	.....	.53	32,066,878	16.93	26.7
Mississippi	5.98	16.56	.....	.....	.....	36,131,773	22.54	31.2
Louisiana	30.77	22.48	.....	.....	.....	76,579,730	53.25	68.0
Texas	42.50	.....	.....	.....	2.32	144,738,586	44.82	139.5
Arkansas	5.43	8.10	.....	.....	.25	18,595,590	13.78	14.9
Kentucky	34.27	22.43	.....	.....	1.92	129,442,757	58.62	124.6
Tennessee	22.65	15.91	.....	.....	.....	79,939,451	38.56	72.8
Total	$22.11	$13.96	.....	$0.16	$0.65	$843,916,690	$36.88	$771.6
MIDDLE STATES.								
Ohio	$81.89	$42.12	.....	$12.01	$6.21	$606,224,073	$142.23	$547.5
Indiana	48.33	11.50	$6.38	3.09	4.63	191,185,238	73.93	165.5
Illinois	96.16	61.99	.....	.....	5.59	824,140,073	163.74	723.3
Michigan	39.48	63.89	.....	.....	2.48	263,573,028	105.85	243.8
Wisconsin	49.40	32.09	.....	.35	6.21	189,131,908	88.05	173 6
Minnesota	58.63	29.69	.....	9.17	3.10	185,498,045	100.59	157.2
Iowa	53.07	26.52	.....	43.39	9.57	304,739,412	132.55	271.2
Missouri	76.66	43.69	34.84	.....	3.33	506,632,318	158.52	374.2
Total	$68.63	$42.11	$5.36	$7.40	$5.22	$3,071,124,095	$128.72	$2,656.3
WESTERN STATES.								
North Dakota	$37.90	$34.40	.....	.....	.....	$25,049,431	$72.30	$16.9
South Dakota	34.95	52.31	.....	.....	.....	36,127,320	87.26	25.8
Nebraska	72.87	42.58	.....	.....	.....	123,306,251	115.45	113.8
Kansas	40.43	30.54	.....	.....	$2.88	109,530,473	73.85	106.0
Montana	79.74	57.78	.....	.....	.....	36,306,149	137.52	32.4
Wyoming	72.21	15.33	.....	.....	16.82	10,332,151	104.36	8.7
Colorado	147.93	15.41	.....	.....	2.24	93,721,033	165.58	90.2
New Mexico	36.42	11.25	.....	.....	.....	9,677,165	47.67	8.0
Oklahoma	32.11	20.51	.....	.....	.....	24,260,373	52.62	18.4
Indian Territory	25.05	.....	.....	.....	2.00	11,713,071	27.05	8.7
Total	$58.15	$30.28	.....	.....	$1.51	$480,023,417	$89.94	$429.1
PACIFIC STATES.								
Washington	$73.28	$29.06	.....	.....	$0.70	$56,774,965	$103.04	$47.9
Oregon	58.51	14.80	.....	.....	.99	32,248,458	74.30	24.8
California	57.82	120.10	.....	$128.76	1.95	475,610,940	308.63	426.9
Idaho	41.42	5.19	.....	.....	1.06	8,437,815	47.67	7.5
Utah	46.05	144.12	.....	.....	.....	55,149,538	190.17	50.4
Nevada	14.31	51.78	.....	.....	2.26	2,870,497	68.35	3.0
Arizona	29.93	35.16	.....	.....	.....	8,592,041	65.09	7.7
Alaska	2.95	.....	.....	.....	3.41	464,316	6.36	.7
Total	$55.62	$79.36	.....	$61.25	$1.35	$640,148,570	$197.58	$568.4
ISLANDS.								
Hawaii	$8.55	$14.99	.....	.....	$27.75	$8,719,343	$51.29	$5.8
Porto Rico	.....	5.36	.....	.....	.....	5,359,189	5.36	3.4
Philippines	.....	3.74	.....	.....	.....	29,914,489	3.74	24.6
Total	.....	.....	.....	.....	.....	$43,993,021	$4.80	$33.7
Total United States	$76.20	$28.82	$25.16	$36.70	$2.08	$13,363,865,818	$151.86	$12,357.5

Currency Reform.—The convention of the American Bankers' Association, which met at New Orleans, in November, was addressed by the comptroller of the currency, ex-Comptroller Dawes, C. N. Fowler, author of the Fowler Bill, C. A. Pugsley, and Horace White. They all spoke on the necessity of greater elasticity in the currency system, in order to avoid the spasms in the money market, which recur so regularly and so unpleasantly every autumn when cash is drawn from eastern banks to move the crops of the agricultural west. There was no agreement among the speakers as to a remedy, nor has any measure yet been devised which has met with sufficient approval to insure its passage by Congress, or even its acceptance by a majority of bankers. When the demand for money to move the crops declines, the country banker, being unable to reduce his circulation easily and readily, increases his balance in the reserve cities, especially New York, attracted by the interest he receives. A New York banker can do little with the money except to lend it on call. The plethora of money stimulates stock gambling, unsound promotion, and underwriting of all sorts of new enterprises on the most uncertain basis of these demand deposits from outside banks. Mr. William B. Ridgely, in *Sound Currency* for December, 1902, says: "In the autumn when this money is wanted again, there is trouble to furnish it. This goes on year after year. Every one knows what is going to happen, and it always does happen. The annual recurrence of this perennial disturbance of the money market is a disgrace to our intelligence and a reflection on our business judgment and sense. . . . We have the greatest farms and the best farming machinery for producing the crops, the most extensive, best equipped, and most perfectly organized system of warehouses, elevators, lake vessels and railways, for storing, handling, and distributing these products, and yet year after year we go on using the obsolete financial machinery without even an apparent effort to improve it. It is not so much a question for the banks and bankers nor of furnishing them additional privileges, but it is a matter of paramount importance to the people engaged in all lines of business, who have the right to demand that they be given the best business facilities which can be devised."

The necessity for a more elastic currency was discussed throughout 1902, and much effort was made to arouse an intelligent popular interest in the subject. Almost all the plans for currency reform start with the assumption that to give elasticity to the currency the issuance of bank notes must be made easier. The demands for asset currency, emergency circulation, and other disguised forms of credit money all proceed upon this theory. More money, plenty of it, was the cry, as it was in the "Greenback" and the "Free-silver" days. The general demand has merely shifted from irredeemable paper and depreciated metal to "elastic" bank-note currency. To many it seemed that elasticity means power to expand but not to contract. Even financial writers generally spoke of the needs of more money to move the crops, and passed over in silence the equally urgent need of less money for inflating flimsy financial balloons. The advocates of currency reform proposed to secure elasticity by basing note issues upon bank assets and by taxing emergency note issues. The *Bankers' Magazine* held that contraction can be assumed quite as efficiently and more cheaply by requiring gold redemption. A tax large enough to force the retirement of an emergency circulation, it says, "would be a considerable burden on business by making such notes unnecessarily costly." Such currency would be issued only when interest rates were high and the added tax of five or six per cent. would prevent the use of the notes in any legitimate business. This view was not generally accepted. The tax clearly would not actually be added to the interest rate, but when the interest rate should rise high enough to make it profitable notes would be issued. The point of issuance would be determined by the tax rate, the interest rate being affected only indirectly. In the main, however, the criticism is sound.

The cry for more money was not universal. Many believe that the high prices were caused by a redundant currency. The London *Bankers' Magazine* pointed out the fact that the United States had an amount of currency considerably in excess of the total volume of foreign trade. "As a purely monetary proposition there is no proof whatever that the United States has an insufficient currency. The official statistics indicate quite the reverse. It is inconceivable that over eighty millions of people should have real use for $2,336,000,000 of circulating medium. Or, if at exceptional seasons of the year, at the moving of the crops, for instance, it should be all needed, these emergencies are brief; they recur annually and can always be anticipated. Moreover, 'elastic' banking is required then, rather than 'elastic' currency. A well-managed bank should always be able to finance the local crops by judicious use of its credit without reference to whether the total currency of the country be a few million dollars more or less." The writer bewails the "magnateered" state of the American people who, "having lost control of their iron, their coal, their beef, and nearly every other staple product of the soil, have still one anchor of individual liberty to hold on to, and that is their local banks." He expresses great satisfaction in the prospective defeat of the branch banking scheme.

In his report, Secretary of the Treasury Shaw favored (1902) a law providing for the exchange of gold for silver, and when this shall have been done he suggests that national bank notes be made redeemable in gold. He thinks that the burden of providing gold for export and for domestic use would thus be transferred, in great part, from the government to the banks. Mr. Shaw failed to notice that the banks could easily shift the burden by presenting legal tenders and silver for redemption in gold. He did not advocate the retirement of the greenbacks. He recommended the repeal of the law limiting the total subsidiary coinage to $100,000,000, and the conversion of silver dollars and bullion into subsidiary coins whenever required. He did not favor branch banks, but suggested that banks be permitted to issue notes on their general credit, and expressed the opinion that with a proper tax—which he chose to call an insurance premium—the notes so issued would be absolutely safe, even without being made a first lien upon assets.

The Fowler Bills.—The most important provisions of the original bill introduced by Representative C. N. Fowler, of New Jersey, at the first session of the Fifty-seventh Congress were: (I) The establishment of a division of banking and currency in the treasury department to consist of three members exercising all the authority of the present comptroller of the currency and such other authority vested in them by the bill; (II) any national bank that shall assume the current redemption of an amount of United States notes equal to 20 per cent. of its paid-up capital, shall have the right, without depositing United States bonds, (1) to issue an amount of bank notes equal to 10 per cent. of its paid-up capital by paying a semi-annual tax of one-eighth of one per cent. on the average amount of such notes in circulation; (2) to issue an equal amount under like conditions during the first year. The tax was not to be increased so long as the United States notes were redeemed by the bank, but whenever any of the notes should be presented at the United States treasury for final redemption and retirement, the tax on a corresponding amount of the bank's circulation should be increased to five-eighths of one per cent. semi-annually. Further provisions allowed the banks to issue additional notes to an amount equal to 40 per cent. of their paid-up capital by paying a semi-annual tax of five-eighths of one per cent. on the amount issued, 20 per cent. more by paying a semi-annual tax of 1½ per cent., and 20 per cent. more by paying a semi-annual tax of 2½ per cent. Under this bill, if a bank should assume the redemption of United States notes, it must present the same at the treasury for indorsement, and at the same time surrender an additional amount of United States notes equal to one-half of the notes presented for indorsement, receiving therefor gold coin. These additional notes were to be cancelled and destroyed. (III) When the banks should have issued United States notes to the amount of $130,000,000, and the United States had consequently retired $65,000,000 of these notes, it was provided that only indorsed United States notes should be paid out by the banks, the unindorsed notes to be surrendered for gold to the treasury to be destroyed. Another section authorized the secretary of the treasury to deposit all money of the United States in excess of $50,000,000 in national banks, upon condition that the banks deposit United States bonds equal in amount at par. (IV) Section 20 provided for the establishment of branch banks. The principal object of the law was to substitute a safe and elastic bank currency for the "greenbacks," which are perfectly inelastic and form the links of the "endless chain," so effective in depleting the treasury reserve in time of money stringency. The demand obligations of the government amount, all told, to more than $700,000,000. It was the intention to shoulder this vast burden upon the banks, and to make the banks entirely responsible for providing and protecting the commercial reserve and for furnishing all the gold needed for export. This would simplify and limit the government's fiscal operations to the collection of revenues and the payment of expenses, precisely as the States and municipalities collect and disburse their revenues. The second great object of the measure was to give banking institutions the privilege of establishing themselves anywhere in the United States, its possessions, or other countries, thus lowering and equalizing the rates of interest in all parts of the country, and putting the farmers and merchants of small rural communities on equal terms with the borrowers in the great commercial centres. The bill passed the House but failed of consideration in the Senate. The Senate, and, indeed the country generally, were hardly ready for such a revolutionary measure. Mr. Fowler accordingly remodeled his bill, struck out the more radical features, and introduced what is really a new measure at the beginning of the second session of the Fifty-seventh Congress. This bill provides that a national bank may issue bank notes to the amount of 25 per cent. of its paid-up capital without depositing United States bonds, but shall pay a semi-annual tax of one-quarter of one per cent. on such issue. Much opposition was developed even to this mild reform and its passage seemed doubtful at the close of 1902.

Branch Banking.—Briefly, the proposed branch banking system is a plan to

authorize the national banks to establish branches wherever they wish. The advantages alleged are: (1) Greater resources available in communities distant from financial centres; (2) uniform and lower interest rates throughout the country; (3) far greater power of concentration of capital at the point most in need of it, thus securing the much demanded "elasticity" of currency; (4) economy. The objections urged are: (1) Danger of a banking monopoly, which may exact almost any interest rates, and crush out independent bankers, and (2) insufficient banking facilities for rural districts.

The Canadian system of branch banks has been held up as a model worthy of imitation, because it makes interest rates uniform throughout the country, prevents the sudden flurries at the financial centres when outside demand is heavy, and furnishes a currency of great elasticity. The *Bankers' Magazine* for December, 1902, points out that while the Canadian system prevents the recurrence of money scarcity in the financial centres, it does so at the expense of the agricultural communities, which are very inadequately supplied with money at the harvest season. The Manitoba department of agriculture complained of the lack of banking facilities in moving the enormous wheat crop. At Winnipeg, the commercial centre of the Canadian Northwest, only twelve of the more than thirty chartered banks of the Dominion have established branches, and throughout the whole territory only some forty branches have been established. The *Bankers' Magazine* remarks: "Without ascribing to the Canadian banking managers any design of forcing the wheat at low prices into the hands of bank favorites, and allowing for the imperfect conditions for the collection and transportation of the grain, this instance of inability to care for a phenomenal crop indicates that the business instincts of the population are not stimulated under the chartered and exclusive system of Canada as they are under the independent competition of the free banks of the United States. . . . The more the practical operations of the Canadian chartered bank, through its branches, are looked into closely, it will be found that while perhaps admirable for the concentration of capital and for safety, they may either from design or from inherent imperfection be very defective in the distribution of facilities. . . . The Canadian centres of collection keep themselves free from these spasms, because they are in a position to refuse to strip themselves to meet even the most urgent local needs."

The system of independent banks of the United States supplies cash to the centres of trade more efficiently than does the Canadian system, and at the same time our local banks have the absolute power to demand the return of their deposits whenever the need arises. The defect in the American system is the lack of elasticity in note circulation, and insufficient power to enlarge cash reserves on the part of the great banks of the money centres in time of strong demand for money. The *Bankers' Magazine* concludes that the Canadian plan, while it has many excellent features, cannot be copied with advantage by the United States.

The annual convention of the Wisconsin Bankers' Association unanimously adopted resolutions opposing the "Fowler Bill and all legislation tending to the substitution of branch banks for our present independent system of banking"; also, "any law tending toward the substitution of asset currency for the present national bank circulation." It was urged in opposition to the Fowler Bill that it would "bring about a banking trust, with a $50,000,000 parent bank at New York with $500,000,000 in asset currency, the annihilation of every bank in every city of any importance in the United States and the substitution therefor of the branch bank, the abolishment of the United States treasury and the virtual withdrawal of the United States from managing its own affairs." It was also argued that branch banking would reduce interest rates until a monopoly was secured, and then raise the rates higher than before.

Foreign Banks of Issue.—The condition of the principal foreign banks of issue on April 1, 1902, as reported by the *Bulletin de Statistique*, is as follows, in millions of francs (the franc is worth 19.3 cents):

Banks.	Capital.	Specie Reserves.			Circulation.	Deposits and Accounts Current.	Minimum Rate of Discount.
		Gold.	Silver.	Total Specie.			
							Per Cent.
Imperial Bank of Germany	150.0	.....	.....	1,238.7	1,762.1	707.6	3
Bank of Austria-Hungary	217.0	1,110.4	320.4	1,430.8	1,543.4	126.7	3½
National Bank of Belgium	50.0	.....	.....	117.4	604.7	63.9	3
Bank of France	182.5	2,570.2	1,125.0	3,695.0	4,041.0	544.6	3
Bank of Italy	240.0	318.4	66.4	384.8	863.5	176.2	5
Bank of Russia	133.4	1,943.5	236.0	2,179.5	1,469.6	436.5	4½
Bank of Spain	150.0	354.1	492.2	846.3	1,598.4	518.3	4
Bank of England	367.0	944.4	.....	944.4	759.0	1,108.1	3

BAPTISTS. The American Baptist churches ascribe their origin to Roger Williams, who, about 1640, became converted to the principles of the Baptist faith. There are thirteen divisions of Baptists, but the Regular (North, South, and Colored) Baptists are distinct only in organization, having no doctrinal differences. These three bodies, with a total membership, as reported by the American Baptist *Year Book* of 1902, of 4,269,063, constitute by far the largest part of the denomination, which includes more than 4,625,000 communicants and which ranks third among the denominational families of the United States. The various divisions of Baptists, according to the statistics of Dr. H. K. Carroll, in the *Christian Advocate,* are represented as follows: Regular Baptists (North)—7512 ministers, 8983 churches, and 1,012,276 communicants; Regular Baptists (South)—12,599 ministers, 19,894 churches, and 1,702,324 communicants; Regular Baptists (Colored)—10,726 ministers, 15,583 churches, and 1,615,321 communicants; Six Principle Baptists—8 ministers, 12 churches, and 828 communicants; Seventh Day Baptists—107 ministers, 100 churches, and 10,734 communicants; Free Will Baptists—1360 ministers, 1518 churches, and 84,436 communicants; Original Free Will Baptists—120 ministers, 167 churches, and 12,000 communicants; General Baptists—484 ministers, 423 churches, and 24,775 communicants; Separate Baptists—113 ministers, 103 churches, and 6479 communicants; United Baptists—25 ministers, 204 churches, and 13,209 communicants; Baptist Church of Christ—80 ministers, 152 churches, and 8254 communicants; Primitive Baptists—2130 ministers, 3530 churches, and 126,000 communicants; Old-Two-Seed-in-the-Spirit Predestinarian Baptists—300 ministers, 473 churches, and 12,851 communicants. In the Sunday-schools of the Regular Baptists, 27,211 in number, are enrolled 201,102 officers and teachers and 1,843,469 scholars. The value of church property aggregates nearly $90,000,000. Educational interests are represented by 9 theological seminaries, 103 universities and colleges, and 91 institutions of lower grade.

The national anniversaries of the various societies of the Northern Baptists in 1902 were held in St. Paul, Minn., May 19-27. The receipts for the year of the American Baptist Missionary Union were $680,518, the excess of this sum over the appropriations reducing the debt to $35,000, which is being raised by subscription. The society is desirous of obtaining an increase of $50,000 in order to send out a number of new missionaries. Its work is carried on in Burma, Assam, Southern India, China, Japan, the Philippines, Africa, and in Europe. One of the features of the meeting was the address of Dr. Thomas S. Barbour, who had returned from an extended tour of the mission fields. A gain of nearly $24,000, the total being $694,785, in the sales of the American Baptist Publication Society was reported. This organization also conducts home missionary work, a notable department of which is the maintenance of Gospel wagons (26) and chapel cars (6) in the neglected regions of the West. Announcement was made of a gift of $40,000 for the missions of the society. The American Baptist Home Missionary Society now supports in the field 1278 missionaries. Its receipts for the year aggregated $614,223. At the annual meeting were discussed special topics on the various peoples and districts in which the society is interested. The question of coordination or consolidation of the national societies continued to occupy a prominent place in the discussions of 1902, the matter having been agitated for some time. A committee of 15 is to review the whole situation and will make its recommendations at the next anniversaries in Buffalo. The anniversary of the Southern Baptist Convention was held in Asheville, N. C., beginning May 9, 1902. Its foreign mission fields in Italy, Brazil, Mexico, Africa, China, and Japan include 127 churches, 166 out-stations, and 6773 church members; its home department, 2660 churches and stations, in which are employed 811 missionaries. The twenty-second annual meeting of the National Baptist Convention in Birmingham, Ala., about the middle of September, 1902, was the scene of a great disaster, more than a hundred lives, it was reported, being lost in the panic that attended a supposed alarm of fire. The session of the Baptist Congress, held in Boston late in the year, was noticeable chiefly for the argument that unbaptized persons should be admitted to membership in the church, one prominent speaker urging that "baptism is an expression of faith merely, an act of obedience only, and it is essential neither to salvation nor to the highest type of Christian character."

BAPTIST YOUNG PEOPLE'S UNION OF AMERICA, founded in 1891, is an organization of all young people's societies in the Baptist churches of the United States and Canada. Its objects are the promotion of biblical and denominational education and the development of spiritual and missionary activity. The annual convention, held July 10-13, 1902, in Providence, R. I., was noteworthy particularly for the report of the board of managers that the debt of $20,000 that existed at the time of the last meeting, had been practically cancelled. The union now looks to a substantial expansion of its work, and a general secretary was elected. The convention was attended by over 5400 delegates and visitors, representing forty-five

States and Territories, and provinces, as well as China, Japan, India, Burma, and Africa. The *Baptist Union* is the official publication of the society. President, John H. Chapman; general secretary, Rev. Walter Colley; headquarters, 324 Dearborn Street, Chicago, Ill.

BAR ASSOCIATION, AMERICAN, was organized in 1878 as an association of leading lawyers in the United States, who meet annually for the purpose of discussing matters of interest to the profession and to the community at large. Each State is represented by one vice-president. Membership, about 1750. At the twenty-fifth annual meeting, held at Saratoga Springs, N. Y., August 27-29, 1902, reports on the following and other subjects were presented by committees and discussed: Jurisprudence and law reform, commercial and international law, patent, trade-mark, and copyright law, classification of the law, uniform State laws, federal courts and federal code of criminal procedure, industrial property and international negotiation, title to real estate. The annual address was delivered by Hon. John G. Carlisle. The 1903 meeting is to be held at Hot Springs, Ark. President, Francis Rawle, Philadelphia, Pa.; secretary, John Hinkley, 215 N. Charles Street, Baltimore, Md.

BARBADOS, a West Indian island constituting a British colony, has an area of 166 square miles and a population (1901) of 195,588. The capital is Bridgetown (population, in 1902, about 25,500). Legislation is effected by an appointed council and an elected assembly. The governor in 1902 was Sir Frederic Mitchell Hodgson (since 1900). Revenue and expenditure in 1900 amounted to £185,475 and £182,866 respectively; in 1901, £179,972 and £175,350 respectively. The public debt in 1901 was £428,600. Total imports and exports in 1900 were valued at £1,045,252 and £919,011 respectively; in 1901, £1,021,679 and £950,175. As in other West Indian islands economic conditions in Barbados are retrograde on account of the depression in the cane sugar industry. The sugar question was the principal one discussed at the West Indian Agricultural Conference held in the island January 4-6, 1902. The general opinion was that adequate sugar factories with modern machinery and appliances are absolutely necessary to revive the industry. Owing to the low price of sugar the merchants in the following month refused to advance money for the working of the estates, and upon petition the governor consented to bring before the secretary of state for the colonies the question of an imperial loan. Reduced wages in 1902 increased the general depression, and in the fall of the year a serious epidemic of smallpox aggravated the distress of the black population, who are exceedingly poor.

BARLEY. As reported by the United States Department of Agriculture, the barley crop by countries, in 1901, was as follows:

	Bushels.		Bushels.
Russia	239,917,000	Denmark	18,000,000
Germany	152,537,000	Sweden	12,368,000
Austria-Hungary	118,315,000	Bulgaria	12,000,000
United States	109,933,000	Mexico	9,000,000
Great Britain and Ireland	69,836,000	Italy	8,000,000
Spain	55,000,000	Belgium	4,555,000
Japan	44,000,000	Netherlands	3,700,000
France	38,884,000	Australasia	2,868,000
Algeria, Tunis, and Cape Colony	43,800,000		
Canada	27,531,000	Total	995,466,000
Roumania	24,222,000		

The imports of barley into the United States in 1902 were 57,406 bushels (valued at $33,221), of which 56,475 bushels (valued at $32,730) came from Canada. The amounts in bushels and the values of the exports in 1902 were: Great Britain, 6,377,561, $2,837,169; Portuguese Africa, 1,034,158, $447,760; British Australasia, 481,404, $288,340; Belgium, 606,069, $271,495; Mexico, 188,823, $137,863; other countries, 26,253, $12,676—total, 8,714,268, $3,995,303.

The *Crop Reporter* for October, 1902, states that "shipments of barley from Pacific ports, in response to rapidly increasing foreign demands, have resulted in such appreciation of the price of this grain as to render its growing in the Pacific Coast States more profitable than that of other cereals." The shipments of barley by sea from California increased from 1,129,416 centals (100 pounds each) in 1892, to 4,381,682 centals in 1902.

Remy, a German plant breeder, who devotes his attention largely to barley, has originated varieties of low-moisture requirements suitable for dry regions. This investigator is endeavoring to move the period during which the barley plant uses the greatest amount of moisture toward the winter so that the growing plant may draw to a greater extent on the supply of winter moisture left in the soil. He found, for example, that a variety called Hanna produced a large total crop and a good yield of grain with a comparatively small moisture supply, and in addition did not prove

very sensitive to a supply of moisture above the normal; while the variety goldthorpe reached its maximum water consumption two weeks earlier, thus being able to use more of the soil moisture stored in the winter. The results of his selection experiments indicate that by selecting plants having a small number of internodes, long upper internodes, and a high percentage of grain the productiveness of the variety can be increased. Fertilizer experiments by the same investigator showed that phosphoric acid and potash increase the yield with a proportional decrease in the protein content of the grain, but that phosphoric acid does not affect the size of the grain. Experiments by Bieler and Aso, of the University of Tokio, showed that barley has a smaller surface capacity for phosphoric acid than either wheat or oats, and that the assimilation of plant food by barley is confined mainly to the earlier stages of growth, while in wheat and oats it is distributed through the period of vegetative activity. Stoklasa and Pietra, in Austria, found that muriate of potash combined in reasonable quantity with superphosphate and nitrate of soda is beneficial to the development of the plant and the quality of the grain. Gross, in Bohemia, found that slow-acting nitrogenous fertilizers, such as barnyard manure, in combination with mineral fertilizers materially increase the yield of barley. Von Seelhorst found that in general a good supply of plant food tends to produce a strong and well-developed root system with roots growing to greater depths than when the food supply is limited. For this reason generously manured barley shows a relatively high resistance to drought.

BARNARD COLLEGE, New York City, organized 1889, a woman's college constituting an integral part of Columbia University (*q.v.*).

BARNWELL, Robert Woodward, bishop-coadjutor of Alabama, died in Selma, Ala., July 24, 1902. He was born in Beaufort, S. C., December 27, 1849, and was educated at Trinity College, Hartford, Conn. After additional study at the General Theological Seminary, New York, he was ordained in 1875, held a pastorate in Demopolis, Ga., from 1876 to 1880, became rector of St. Paul's Church, Selma, Ala., in 1880, and on May 18, 1900, was elected bishop-coadjutor of the State.

BAR OF THE CITY OF NEW YORK, The Association of the, organized in 1869 and incorporated in 1871, owns and occupies a commodious building at 42 West Forty-fourth Street, New York City, in which is a valuable law library of 53,000 volumes, the property of the association. President (1902-03), William G. Choate; recording secretary, S. B. Brownell; treasurer, S. Sidney Smith.

BARON DE HIRSCH FUND. A fund created in 1889 by Baron Maurice de Hirsch for assisting Jewish, Russian, and Roumanian emigrants to America in getting a start in the new country. The capital invested with this object in view was $2,500,000, yielding an annual income of $100,000. An English day school is maintained in the Educational Alliance Building, 193 East Broadway, New York; an evening school at the same address for Russian adults of both sexes who work during the day; a trade school in East Sixty-fourth Street, where young men are taught useful mechanical trades—machine-work, plumbing, carpentry, electrical construction, sign and house-painting, etc. The Jewish Colonization Society cooperates with the directors of the fund. Attendance at the English schools, both day and night, is about 650. President, Meyer S. Isaacs; treasurer, Emanuel Lehman; general agent, A. S. Solomans. Headquarters, 45 Broadway, New York City.

BAROTSELAND, a part of British Central Africa. See Rhodesia (paragraph Northern Rhodesia).

BARROWS, John Henry, president of Oberlin College, died at Oberlin, O., June 3, 1902. He was born at Medina, Mich., July 11, 1847. After graduating at Olivet College (Mich.) in 1867, he studied at the Yale, Union, and Andover theological seminaries and in Germany, and after holding pastorates at Lawrence and Boston, Mass., occupied the pulpit of the First Congregational Church of Chicago, Ill., from 1881 to 1896. From this church, of which he published a history in 1883, he withdrew to lecture in India, China, and Japan. He was the organizer and president of the World's Congress of Religions at the World's Columbian Exposition of 1893, lectured at the Union Theological Seminary in 1898, and was subsequently lecturer in comparative religion at the University of Chicago. In 1899 he became president of Oberlin. His published volumes include: *The Gospels are True Histories* (1891); *I Believe in God* (1892); and *Henry Ward Beecher, the Pulpit Jupiter* (1893).

BARYTES. See Mineral Production.

BASEBALL. The professional season of 1902 saw the rise of the American League to a position of importance almost equal to that of the National League. This was accomplished by defections from the ranks of the major league's players in favor of its rival, thereby raising the standard of the latter organization. There was constant warfare between the two leagues, which, however, did not diminish the popularity of the game, but rather increased attendance. In cities where both

leagues had teams, the American attracted larger crowds. The results follow. National: Pittsburg, won 103, lost 36; Brooklyn, won 75, lost 63; Boston, won 73, lost 64; Cincinnati, won 70, lost 70; Chicago, won 68, lost 69; St. Louis, won 56, lost 78; Philadelphia, won 56, lost 81; New York, won 48, lost 88. American: Athletics (Philadelphia) won 83, lost 53; St. Louis, won 78, lost 58; Boston, won 77, lost 60; Chicago, won 74, lost 60; Cleveland, won 69, lost 67; Washington, won 61, lost 75; Detroit, won 52, lost 83; Baltimore, won 50, lost 88.

In college baseball there is no championship except by comparison of scores. In 1902 Harvard defeated Yale in their series, the games being (1) Yale 7, Harvard 2; (2) Harvard 10, Yale 4; and (3) Harvard 6, Yale 5. Yale beat Princeton (1) Yale 10, Princeton 6; (2) Princeton 8, Yale 5; and (3) Yale 5, Princeton 4; and Princeton defeated Harvard 7—0, in the only game they played. Of the eastern colleges Harvard was conceded to have had generally the best team. The University of Illinois team traveled east and defeated Princeton 3—1, Yale 10—4, West Point 6—5, and Pennsylvania 11—3, and was in turn beaten by Harvard 2—1. Others of the more important games resulted as follows: Pennsylvania 4, Yale 2; Pennsylvania 4, Cornell 2; Harvard 8, Brown 1; Yale 6, Brown 3; Pennsylvania 7, Brown 1; Harvard 8, Pennsylvania 5; Harvard 1, Pennsylvania 0; Princeton 5, Cornell 1; Princeton 2, Brown 1; Harvard 11, Cornell 1.

The Tri-Collegiate League, composed of Amherst, Wesleyan, and Williams, was dissolved before the championship was decided, on account of difficulties arising in the case of Kane, an Amherst player, against whom charges of professionalism were made. He was declared a professional by the league authorities, but acquitted by the Amherst faculty committee, who insisted on their right to play him in non-league games. Relations with Amherst were abruptly severed by both Williams and Wesleyan.

BASKETBALL. The basketball season extending through the winter of 1901-02 was marked by a greatly increased interest in all quarters, especially among the college teams. The college championship was won by Yale, with a score of 5 games won and 3 lost. Harvard and Princeton followed each with 4 games won and 4 lost, Columbia won 3 and lost 3, and Cornell won 2 and lost 4. Amherst stood at the head of the New England Intercollegiate Association with 4 victories and no defeats, followed by Williams and Dartmouth each with 2 games won and 2 lost, and Trinity and Holy Cross, each with 1 game won and 3 lost. In the Amateur Athletic Union the Seventeenth Separate Company, of New York, won the Metropolitan Association championship with 7 victories and no defeats, and the Central Association championship (Chicago), was won by the Central Y. M. C. A. with 3 games won and none lost.

BASUTOLAND, an inland British colony lying between eastern Cape Colony and the Orange River Colony, has an estimated area of 10,293 square miles. The estimated native population in 1901 was 263,500; Europeans, who are not allowed to settle in the country, numbered 647. The colony is administered by a resident commissioner under the high commissioner for South Africa. For the fiscal year 1901 the revenue and expenditure amounted to £74,891 and £55,486 respectively; for 1902, £104,284 and £64,809 respectively. There is no public debt. The exports are largely grain, cattle, wool, and horses. In the fiscal year 1901 the dutiable imports were valued at £145,474 and the total exports at £361,647; in 1902, £230,708 and £166,894 respectively. In July, 1902, the chief Joel Molapo was condemned to a year's imprisonment and to pay a fine of 500 cattle for high treason and for fighting against his brother Hiesen. Throughout the Boer war he was inclined to favor the Boers and was generally unwilling to obey the instructions of the resident commissioner.

BAUXITE. See MINERAL PRODUCTION.

BEACH, JOHN WESLEY, seventh president of Wesleyan University, died at Middletown, Conn., January 1, 1902. He was born at Trumbull, Conn., December 26, 1825, and in 1845 graduated at Wesleyan. He taught for some years in the Amenia Seminary, was ordained a Methodist minister in 1884, and held pastorates in New York City, Brooklyn, Bridgeport, and New Haven. In 1880 he was made president of Wesleyan, and held that position until 1887 when he resigned, and became presiding elder of the Brooklyn district. His college administration was marked by his liberal views and executive ability, while in religious circles he was known as a forceful and effective preacher.

BEARDSHEAR, WILLIAM MILLER, an American educator, died at Ames, Ia., August 5, 1902. He was born in Dayton, O., November 7, 1850, and received his education first at Otterbein University, from which he later received the degrees of M. A. and LL. D., and at Yale University. From 1881 to 1889 he was president of the Western College in Toledo, Ia., superintended the public schools at Des Moines from 1889 to 1891, and then until his death was president of the Iowa State College

of Agriculture and Mechanical Arts. Among other offices held by him are president of the Iowa State Teachers' Association in 1894, president of the National Educational Association, member of the jury for educational awards at the Pan-American Exposition, and United States Indian commissioner from 1897.

BECHUANALAND PROTECTORATE, a British South African dependency, has an estimated area of 213,000 square miles and an estimated population of 200,000. Lying between German Southwest Africa on the west and Southern Rhodesia and the Transvaal on the east, it extends from the Molopo River, the northern boundary of the former Bechuanaland Colony (now a part of Cape Colony) northward to the Zambesi. The three great chiefs, Khama, Sebele, and Bathoen, continue to govern their own people under the protection of Great Britain, which is represented by a commissioner resident at Mafeking, who acts under the high commissioner for South Africa. The people are peaceable and engage in cattle raising and to some extent in agriculture. No licenses are issued for the sale of spirituous liquors. About 400 miles of the Rhodesian ("Cape-to-Cairo") Railway run through the eastern part of the protectorate.

BEET SUGAR. See SUGAR INDUSTRY.

BEIT, ALFRED, a South African capitalist, came into greater prominence by the death of Cecil Rhodes on March 26, 1902, which left him probably the wealthiest and most influential financier in South Africa. He was born of Jewish parentage at Hamburg, Germany, in 1853, and while still a young man went to South Africa and entered the diamond mining business. When the De Beers Consolidated Mines, Ltd., was formed in 1888 to exploit the chief South African diamond mines, Mr. Beit became a life governor. In 1895 he was in the secret of the Jameson Raid and afterward gave testimony before the parliamentary committee that investigated the affair. From the time that Rhodes consummated his great consolidation of the diamond mines, he and Mr. Beit were in close business association, and the latter is one of the executors of the famous Rhodes will. The South African millionaire is also much the largest shareholder in the Rand Mines, Ltd. His wealth has been estimated at $375,000,000, but, unlike Rhodes, he has never been interested in politics of any kind that would not increase his wealth.

BELGIUM, a constitutional monarchy of western Europe lying between France and the Netherlands, and bordering on the North Sea. The capital is Brussels.

Area and Population.—The area of the nine provinces of Belgium aggregates 11,373 square miles, and the population, according to the census of December 31, 1900, was 6,687,651, an increase of 618,330 since 1890. The populations of the principal cities in 1900 were: Brussels (with suburbs), 561,782; Antwerp, 285,000; Liège, 173,708; Ghent, 160,949; Mechlin, 56,013; Verviers, 52,203; Bruges, 52,867. The greater part of the population are adherents of the Roman Catholic Church, the Protestants numbering only about 10,000. The state supports a graded educational system.

Government.—The executive power is vested in the king, succession being in the direct male line in order of primogeniture. The reigning sovereign is Leopold II., who succeeded in 1865. He is assisted by a ministry of eight members, appointed by himself and responsible to the chamber of representatives. The legislative power is exercised jointly by the king and parliament. Parliament consists of two houses, a senate elected partly by direct popular vote and partly by the provincial councils for a term of eight years, and a chamber of representatives, elected directly. There are universal suffrage, with plural voting on property and educational qualifications, and a system of proportional party representation. There are representative councils in both provinces and communes. In 1902 the ministry was as follows: Premier and minister of finance and public works, Count de Smet de Naeyer; minister of interior and instruction, M. de Trooz; minister for foreign affairs, Baron P. de Favereau; minister of justice, M. van den Heuvel; minister of agriculture, Baron van den Bruggen; minister of war, Gen. Cousebant d'Alkemade; minister of railways, posts, and telegraphs, M. Liebaert; minister of industry and labor, Baron Surmont de Volsberghe until August 19, 1902, when he was succeeded by M. G. Francotte.

Army.—The regular army, recruited on a system of conscription that permits substitution, numbers on a peace footing (1902) 51,522 officers and men. The annual contingent comprises 13,300, and the legal period of service is eight years in the active army and five years with the reserve. The war strength of the army is 143,000, and there is a *garde civique* of 43,647. There is no navy.

Finance.—The unit of value is the franc, worth 19.3 cents. The revenue, largely derived from state railways, customs, excise, and personal and property taxes, amounted in 1901 to 488,429,760 francs, and the expenditures, in which the largest items were railways, public debt, army, and public works, to 488,047,973 francs. The budget for 1902 placed receipts at 489,040,050 francs and expenditures at 488,344,403

francs. The national debt on January 1, 1902, amounted to 2,778,051,350 francs, the greater part of which was incurred in the construction of the state railways and other public works.

Industries.—Manufacturing is the principal industry of the country, and although over 65 per cent. of the area is under cultivation, the greater part of Belgium's food supply has to be imported. The principal crops are oats, rye, wheat, barley, hops, potatoes, and beets. Of the mineral products, coal is the most important, 22,073,740 tons being mined in 1901, but the mining of iron, zinc, lead, and copper is also carried on extensively. The chief manufactures include iron and steel products, firearms, machinery, glass, leather goods, cottons, laces, linens, woolens, hosiery, paper, and beer.

Commerce.—The special commerce of Belgium for 1901, as compared with 1900, shows an increase in imports and a decrease in exports, the imports having increased in value from 2,215,800,000 francs to 2,221,000,000 francs, and the exports fallen from 1,922,900,000 francs to 1,828,200,000 francs. The transit trade increased from 1,374,600,000 francs in 1900 to 1,411,200,000 francs in 1901. The imports are largely food-stuffs and raw materials, the exports manufactured articles. The imports in 1901 were obtained principally from France, the United States, Germany, and England in the order named, and the exports were sent for the most part to Germany, France, Great Britain, and the Netherlands. The trade with the United States is growing annually, the imports increasing from a value of 266,674,000 francs in 1900 to 335,700,000 francs in 1901, and the position of the United States among nations furnishing imports advancing in that year over Germany and Great Britain from fourth to second place.

Communications.—The railways in operation at the end of 1901 amounted to 2846 miles, of which 2516 miles were owned by the state. The gross receipts from the state roads in 1900 amounted to 209,194,311 francs, and the expenditure upon the same to 140,428,195 francs. The navigable rivers and canals have a length of 1370 miles.

HISTORY.

The Suffrage Agitation.—The reform of the suffrage continued to be throughout 1902, as it had been during 1901, the most vitally important political problem of the day in Belgium. The agreement entered into in 1901 between the Liberals, Radicals (or Progressists), and Socialists in parliament in their attempt to force from the Clerical-Conservative majority some scheme of electoral reform, was strengthened during 1902 by an amalgamation of the forces of the parties at the polls at the spring elections. The basis of union was a programme of suffrage reform which included a demand for universal suffrage on the plan of "one man, one vote," and the general extension of the principle of proportional representation to the communal elections. With this went the demand for the abolition of plural voting, by means of which the Clerical party had so long been able to hold an artificial predominance in national affairs. The progress of the movement for reform was marked this year, however, by more activity outside of the halls of parliament than within it. The Clericals have apparently come to a realization that unless they can disrupt the allied forces of the opposition they will not much longer be able to withstand their demands, and that compromise of some sort is the only alternative to a resort to force from the employment of which they naturally shrink, and to which it is very unlikely that King Leopold, who knows his unpopularity and feels the insecurity of his crown would consent. Early in 1902 reports were current that the Clericals contemplated a *coup* of a most radical nature in case the opposition continued to make headway. This was no less than a consent to female suffrage, which is part of the programme of the Socialists, but is not acceptable to either the Liberals or the Progressists. By such a stroke the Clericals, so it was declared, could reasonably hope to detach the Socialists, for the time being, at least, from their alliance with the other two parties, and at the same time introduce into the suffrage an element which students of Belgian political conditions declare would give them a renewed lease of power for many years to come. Another cause for Clerical hopes of continuation in power, is said to be in the rather half-hearted acceptance of the demand for extension of proportional representation to the communes, by the Liberals who, by the existing system of plural voting, have been enabled to gain control of the city governments in Ghent, Antwerp, Brussels, and other centres of population in which a well-to-do burgher class exists.

The Socialist Attitude.—The entire impracticability of the Clerical design, if such had existed, of detaching the Socialists from the other opposition forces, was shown early in 1902 by antagonism between the government and Socialist elements in parliament, which as the year progressed was strengthened by popular agitation and developed into the most serious opposition that the Clerical régime has had to face in several years. At the opening session of the chamber, January 14, the inherent

hostility of the Socialists was made evident by a bitter contest between the forces of the premier, Count de Smet de Naeyer, and the Socialists, under the leadership of M. Neujeau, on account of the government's withdrawal of a bill regarding parliamentary salaries, which had already been passed by the chamber at a previous session, the Socialists declaring that withdrawal was illegal. It was believed that the struggle had been precipitated not so much because the Socialists considered the matter one of vital importance, as because it afforded an opportunity for them to serve notice on the government of their unalterable opposition to all parts of the ministerial programme, until their demands regarding suffrage reform had been acceded to.

The Suffrage Riots.—The agitation of the Socialists in behalf of universal suffrage culminated at length in rioting and bloodshed. The contest began in the lower house of parliament on March 19, 1902, with the defeat of two proposals submitted by the Socialists, one providing for universal suffrage without regard to sex, which was voted down by 92 votes to 24, and another providing for manhood suffrage, which was rejected by 92 votes to 45. At once the leaders of the Socialists set under way an active propaganda of agitation. Every day mass meetings were held in the Maison du Peuple. The leaders hoped, by means of monster mass meetings, and processions, and petitions, to impress the government with the power of the public sentiment in their favor. The programme included the marshalling of armies of workingmen in different sections of the country, and marching them to the capital to overawe the legislators. These measures failing, the general strike was to be resorted to. This was voiced in the *Peuple*, the leading Socialist organ, which declared that "As we are not living in the year 1848, during which a revolutionary movement could still succeed, we must have recourse to the general strike." Rioting began on April 9, when King Leopold was almost mobbed at the Brussels railway station. The mob, gathering in front of the Maison du Peuple, marched through the streets, singing revolutionary songs, and shouting "Vive la République!" The leading factor in the riots was the organization known as Young Socialist Guards. On the following day (April 10) the debate in the chamber was exceptionally stormy, and resolved itself into a struggle between the Socialists and Ministerialists over the question of whether the bill for a revision of the constitutional provisions relating to the suffrage should be considered before or after that voting provisional credits to the minister of finance. The government applied closure and carried its point. Rioting was particularly severe on the night of April 12, when the troops ordered to clear the streets fired upon the mob. The casualties for the night were reported at three killed and 100 wounded. On April 14 a general strike was declared, and between 200,000 and 300,000 workmen ceased work, and in the next few days the strike extended largely to the industrial communities. The firm measures adopted by the government, taken together with the attitude of a large element in the population who, though not identified with the Clerical party, decried the lawless means adopted by the Socialists, served to bring the disturbances to an end and hastened the return of the striking laborers to work.

The Attitude of the Liberals.—Perhaps the most significant phase of the suffrage agitation was the attitude of the Liberal party. Hitherto the Liberals have been united with the Socialists and Progressists in the demand for universal suffrage, but during the April riots the Liberal members gave their support to the Clerical majority in the parliamentary struggle and the Liberal press generally supported the ministerial measures for the suppression of the disorders. It is not at all likely that this refusal of the Liberals to participate in or lend aid to the Socialistic agitation means anything more than a recognition that the success of the principles for which they contend will be obtained sooner by a strict observance of the public order than by riot and revolution. There is no likelihood that there will be any abatement of Liberal opposition to Clericalism. The chief Liberal organ, the *Indépendance Belge*, presents the following startling indictment of the party in power: "Instead of educating the people—we have 25 per cent. of illiterates—the public schools have been closed, and those schools developed in which religious instruction is given; instead of doing away with the unjust tax on food, it has been increased; instead of resolutely opposing alcoholism, it has been tolerated, and indirectly encouraged; instead of establishing social justice in the army, the power of money has, on the contrary, been increased, and the gulf separating rich and poor made wider; instead of honorably applying the constitutional principle of the plural vote, it has been misused, and all fraudulent misapplications of it have been, if not encouraged, at least endured."

The May Elections.—Elections for a partial renewal of the chamber, held May 26, 1902, had a peculiar interest in view of the recent riots. The election resulted in the choice of 57 Clericals, 20 Liberals, 13 Socialists, and 1 Christian Democrat—a result which would on its face seem to indicate a Clerical victory, but it was pointed out that most of the elections occurred in Clerical constituencies where the success of

that party was to be expected. The new chamber is composed of 96 Clericals, 34 Liberals, 34 Socialists, and 2 Christian Democrats.

Anti-Gambling and Military Reform Bills.—Two measures that have caused protracted discussion in the legislature for several sessions became laws in 1902. The first, a bill for the suppression of licensed gambling had passed back and forth between the senate and chamber several times during 1901 without any sort of agreement being reached because of the insistence of the senate upon incorporating into the act provision for an indemnity to be paid to the notorious gambling places at Ostend and Spa. The threatened deadlock was at length averted by the introduction of a new measure by the minister of finance (January 14), granting an indemnity of 7,000,000 francs for the suppression of these places, which was accepted by the chamber and passed by the senate. The military reform bill, which provided for an increase of the effective strength of the army by about 20 per cent., the abolition of substitution (*remplacement*), the extension of the volunteer service and consequent curtailing of the conscriptive system, and the shortening of the term of active service was passed by the chamber on January 24 by a vote of 74 to 42 and by the senate on March 20 by a vote of 56 to 39.

The Question of Sunday Labor.—Early in 1902 a bill was prepared by the Conseil Supérieur du Travail for the abolition of Sunday labor. The industrial population of Belgium is one of the hardest worked in all Europe, and to a great proportion of the smaller shop-keepers, artisans, and mechanics observation of the fourth commandment is practically unknown. Even clerks and warehouse employees under the existing régime may be legally held to a performance of their duties on Sundays as well as week-days. The measure did not aim at a reform in national customs or habits, but was intended only to provide that Sunday work be entirely optional. It is unlikely, indeed, that any legislation of this character would effect a radical change at once in the industrial life of Belgium.

Working of the Old-Age Pensions Act.—After a year's trial the Old-Age Pensions Act, which went into effect on August 1, 1901, had proved a source of considerable embarrassment to the government. There were 165,000 applications for pensions on file when the act went into operation, and during the year the demands for pensions unexpectedly increased by more than 30,000, thus completely upsetting the calculations on which the minister of finance based his estimate for providing the necessary funds. The act provides an annual pension of 65 francs for indigent workmen who have attained the age of 65. An inquiry has revealed the fact that heads of local committees and the burgomasters who have charge of the recommendations in the communes have admitted a large number of applicants not entitled to the bounty. The act limits the pensions to *bona fide* laborers, but the pension lists disclose a large proportion of retired tradesmen, small property owners, and others of a similar class. In view of these revelations, the government determined to dissolve the local committees entirely and substitute a committee of inquiry in order to bring the lists within the strict meaning of the act.

Death of the Queen and the Episode of Princess Stéphanie.—Marie Henriette, Queen of the Belgians, died at Spa, Belgium, September 19, 1902. For years the greatest sympathy had been felt for the queen not only in Belgium but throughout Europe because of the outrageous treatment she received from King Leopold. The death of the queen was followed by an event that intensified the feeling of the Belgian people against a sovereign who long before had forfeited their respect. The second daughter of the king and queen is Princess Stéphanie, who married, in 1881, the Crown Prince Rudolph of Austria, whose mysterious death, in January, 1889, shocked all Europe. For several years the king and the princess have not been on good terms, and when, in 1900, Princess Stéphanie married Count Lónyay, a Hungarian nobleman, King Leopold disowned her. Upon hearing of her mother's death Princess Stéphanie hastened to Belgium from England, where she has of late made her home. At the Villa Henriette, at Spa, where the body of the dead queen lay, the princess was received by her younger sister, the Princess Clémentine, but when King Leopold learned of her arrival he declined to receive her, ordered her to leave the villa at once, and refused her permission to attend the funeral ceremonies. This action of Leopold brought forth expressions of reproach and resentment from the European press, and is said to have aroused the sympathy of the Emperor Franz Josef, of Austria, for his son's widow, whose re-marriage he has forgiven.

Attempted Assassination of King Leopold.—An attempt to assassinate King Leopold was made November 15, 1902, by an Italian anarchist named Rubino, who fired three shots at him as he proceeded from his palace in Brussels to the cathedral to attend a *Te Deum* in memory of Queen Marie Henriette. None of the shots took effect. The would-be assassin was seized by the mob, from whom he was rescued by the police with considerable difficulty. On examination he admitted that he was an anarchist, and said he regretted that he had not been successful. The

Italian authorities identified him as a criminal who had been imprisoned in Italy for robbery in 1893 but had escaped to England.

The Congo Free State, which is practically a Belgian colony, is treated under its own title.

BELIZE. See BRITISH HONDURAS.

BELOOCHISTAN, or BELUCHISTAN. See BALUCHISTAN.

BENJAMIN, ANNA NORTHEND, an American journalist and magazine writer, died January 20, 1902. She was born in Salem, Mass., October 6, 1874, and in 1893 graduated at St. Gabriel's School, Peekskill, N. Y. As a special correspondent during the Spanish-American War she attained considerable distinction for reportorial exploits, and was in Santiago the day after its surrender. For six months she served in the Philippines as correspondent for the New York *Tribune* and the San Francisco *Chronicle*, traveled subsequently in China, Japan, and Corea, and made the hazardous overland journey through Siberia and Russia. On her return to America she contributed widely to periodicals and lectured upon her travels.

BENJAMIN-CONSTANT, JEAN JOSEPH. See CONSTANT, JEAN JOSEPH BENJAMIN.

BERMUDA, a British colony consisting of 360 small islands in the Atlantic lying 580 miles off the North American coast. The total area of the group is 20 square miles, and the population (1901) 17,535. The chief town, Hamilton, on Bermuda, or Main Island, has a population of 2246. An imperial force of about 3000 troops is maintained, and the islands also serve as an important naval base and fitting station for the British North Atlantic and West Indian squadrons. The colony is administered by a governor (Sir Henry LeGuay Geary, appointed 1902), assisted by executive and legislative councils, and a representative assembly. The revenue in 1900 was £40,124, of which £32,394 accrued from customs, and the expenditure £47,532. The public debt is £49,600. In 1900 the exports amounted to £93,769 and the imports to £397,136. The trade is largely with the United States, and large quantities of potatoes and onions are grown for the early spring supply of the New York market. Lily bulbs are also extensively grown for export. The islands are a favorite winter resort for Americans, the recent development of the hotel and tourist business adding materially to the prosperity of the colony.

BERNIER, CAMILLE, a French landscape-painter, died in May, 1902. He was born at Colmar in 1823, and was a pupil of Léon Fleury. His study of art was begun in middle life, and he exhibited at the Salon first in 1863. By 1873 he had become a member of the jury of the Salon. In 1868, 1869, and 1878 he received medals, and in 1872 became a member of the Legion of Honor. Nearly all his subjects are drawn from Brittany. His works include: "Kerluce" (1857), "Rocks Near Plousgastel" (1859), "Village of Plounésur" (1863), "Heath Near Bannalec" (1867), "Heath of Kerbagadie," "Fountain in Brittany" (1869), "January in Brittany" (1872), "Woodenshoe Makers in the Woods of Quimerch" (1877), "Mist and Sunshine" (1884), and "A Farm in Brittany" (1891).

BERTRAND, ALEXANDRE LOUIS JOSEPH, French archæologist and art historian, died December 8, 1902. He was born in Paris, June 28, 1820, and was educated at the Normal School and at the French College in Athens. In 1862 he was made director of the Museum of Saint Germain, to which at the foundation he had made valuable contributions, and in 1882 became professor of archæology at the school of the Louvre. In 1885 he was made an officer of the Legion of Honor. Besides contributions to the *Revue archéologique*, of which he was for a time editor, he published: *Etudes de mythologie et d'archéologie grecques* (1858), *Les Voies romaines en Gaule* (1863), *Archéologie celtique et gauloise* (1876), *La Gaule avant les Gaulois, d'apres les monuments et les textes* (1884), *Etudes sur la peinture et la critique d'art dans l'antiquité* (1893), *Les Celtes dans les vallées du Pô et du Danube* (with S. Reinach, 1894).

BIBLE SOCIETY, AMERICAN, founded in 1816 for the gratuitous distribution of Bibles among the destitute and the poor. The issue for the fiscal year 1901-02 amounted to 1,723,791 copies. During its eighty-six years of existence the society has distributed 70,677,225 Bibles, including those in foreign tongues and the languages of several American Indian tribes. The society has received since its organization contributions exceeding $30,000,000. It issues an illustrated monthly, *The Bible Society Record*, besides thousands of leaflets annually. Secretaries, Rev. John Fox, D.D.; Rev. William L. Haven, D.D., and Rev. E. P. Ingersoll, D.D., Bible House, New York City.

BICYCLING, as a sport, is treated under CYCLING (*q.v.*).

BIERSTADT, ALBERT, an American landscape-painter, died in New York City, February 18, 1902. He was born in 1830 at Düsseldorf, Germany, was brought to

the United States when a year old, received a common school education at New Bedford, Mass., and from 1853 to 1857 studied under Lessing at Düsseldorf, and also at Rome. In 1858 he made a sketching tour through the Rocky Mountains, principally in connection with the expedition sent out under Gen. F. W. Lander for the survey of an overland wagon route. He visited Europe in 1867, 1878, and 1883, and in 1860 was elected to the National Academy. He received medals in Belgium, Austria, and Germany, and numerous foreign decorations. His studio was until 1882 at Irvington, N. Y., and thenceforth in New York City. A follower of the Düsseldorf school in landscape, he was expert in draughtsmanship, but in color somewhat dry and severe. He applied the Düsseldorfian manner to a presentation of the heroic scenery of the Sierras and the Rockies, and with Thomas Moran and Frederick E. Church introduced into American art a panoramic method which was at the same time distinctly national. His study of nature was at first hand and careful; his interpretation of it always effective. Tuckerman, in his *Book of the Artists* (New York, 1867), asserts that no more sincere and noble work than Bierstadt's "Rocky Mountains" (1863) exists in American landscape art. Among Bierstadt's other pictures may be mentioned: "North Fork of the Platte" (1864), "Storm in the Rocky Mountains" (1866), "Valley of the Yosemite" (1866), now in the collection of the Lenox Library, New York City; "Mount Corcoran, Sierra Nevada" (1878), in the Corcoran Gallery, Washington, D. C.; and two historical pictures, "The Settlement of California" and "The Discovery of the Hudson River," in the Capitol at Washington.

BILLIARDS. The National Association of Amateur Billiard Players held its tournament (14-inch balk-line) in Brooklyn, N. Y., in January, 1902. The winner was Edward Gardner, of Brooklyn, who won four games and lost none, made a high run of 52 and a grand average of 5.48. The other contestants finished as follows, with games won and lost, high run and grand average: J. Byron Stark, New York, 2, 2, 37, 5.15; A. R. Townsend, New York, 2, 2, 39, 5.26; F. Poggenburg, New York, 1, 3, 40, 5.88; F. C. Gardner, New Jersey, 1, 3, 38, 5.13. The tournament of the Amateur Athletic Union (the parent body) at 14-inch balk-line took place in New York City, in February, when the championship was again won by W. P. Foss, of Haverstraw, N. Y. The standing of the players was: C. S. Norris, New York, 5, 1, 62, 6.43; W. H. Sigourney, San Francisco, 5, 1, 64, 5.50; L. L. Mial, New York, 4, 2, 90, 7.28; C. F. Conklin, Chicago, 3, 3, 45, 6.11; C. G. Threshie, Boston, 2, 4, 52, 5.97; A. B. Miller, New York, 1, 5, 43, 4.74; J. A. Hendrick, 1, 5, 34, 4.62. The tie was won by Norris, who in turn was defeated by Foss, 500 to 464.

BIOLOGICAL STATIONS. See Zoological Expeditions and Stations.

BIOLOGY. Undoubtedly the most widely discussed question in general biology during 1902 was that of heredity, especially with reference to what is known as Mendel's law. Gregor Mendel, abbot of Brünn (Moravia), many years ago in the quiet of the cloister carried on experiments in the hybridization of plants and enunciated the law that now bears his name. But his work was soon forgotten and was brought to the notice of modern biologists only two years ago. Early in 1902, the well-known English biologist Bateson published a small but vigorously written pamphlet supporting Mendel's views, and soon afterwards published a larger work, including results of experiments. Briefly stated Mendel's law is essentially this: In the second and later generations of a hybrid there occur all the possible combinations of the characters of the parents, and in definite proportions. So far most of the evidence in support of this law seems to have been derived from the hybridization of plants, although there is some evidence to show that the same law holds among animals. One of the most important contributions to the discussion was furnished by the well-known American cytologist E. B. Wilson, who late in 1902 called attention to the fact that two students at Columbia University, one a zoologist and one a botanist, working independently, seem to have found in the normal phenomena of the maturation of the germ-cells an explanation, or at least a clue to the explanation, of Mendel's principles of inheritance. This explanation is dependent upon the separation of paternal and maternal elements and their ultimate isolation in separate germ-cells. Should these investigations prove to be as important as they seem, they will very greatly influence biological opinion as to the laws of heredity.

During the early part of 1902, Dr. G. Adlerz, a Swedish zoologist, called attention to a very important law of variation in living organisms which seems to have been hitherto overlooked or at any rate neglected. He states it thus: "During the increase of a species, both the absolute and relative number of varying individuals as well as the amplitude of the variations are increased beyond what is usual." This evidence was drawn chiefly from observations made upon butterflies, but his conclusions have been supported by other writers, notably Prof. W. M. Wheeler, of the University of Texas, who has clearly shown that ants "furnish a brilliant illustration of the evolutionary factor to which Adlerz has called attention." Wheeler

further shows that unfavorable conditions tend to inhibit variability, and he concludes that "the manifold and often wonderfully perfect morphological and psychological adaptations which have made ants the dominant group among terrestrial invertebrates, have their origin in the variability so greatly enhanced by the production of enormous numbers of individuals and the care and protection afforded, through a most important period of their lives, to the reproductive individuals of the colony."

There continued throughout the year the discussion of the unsolved question of the determining factor in evolution, one side holding to the direct action of the environment, the other to the influence of natural selection working on congenital variations. The most important contribution to the discussion was made by Prof. James M. Baldwin, of Princeton University, who has elaborated and fully explained his theory of *othoplasy* in his recent book (see ZOOLOGICAL LITERATURE). Although this theory was originated some time ago by three independent workers, it is now set forth fully and cogently for the first time. It is impossible to do it justice in a few words, but it is in brief a sort of compromise between the two contending schools, since it holds that adaptations to environment, acquired by an individual, even though not inherited, protect it from destruction, and thus such individuals and successors similar to them are preserved until congenital variations occur upon which natural selection can work. It is possible that this theory may prove to be the key to the solution of the problem of organic evolution, but it will probably be a long time before the Neo-Lamarckians and the Neo-Darwinians will lay down their arms.

At the meeting of the Corporation of the Marine Biological Laboratory, held August 12, 1902, the director, Prof. C. O. Whitman, read an important paper on *A Biological Farm*, in which he set forth the great importance of an establishment for the experimental study of heredity, variation, and evolution, and for investigations into life-histories, habits, instincts, and intelligence. He showed beyond doubt the great importance of such a "farm," and outlined it on such a broad scale that an endowment of one million dollars would be needed to start it in a satisfactory way. The foundation of such an establishment will be eagerly awaited and enthusiastically welcomed by all biologists, though it is doubtless true that many would dissent from Professor Whitman's conclusion that Woods Hole is the ideal location for it.

An interesting experiment going on in the Pribilof Islands for some years past was called to the attention of biologists during 1902. The attempt is being made to increase the relative number of female blue foxes of Saint George Island, and change a naturally monogamous animal into a polygamous one. This is being done by trapping the foxes and killing three-fourths of the males, but releasing all the females. This plan, it was thought, would result in a marked increase in the total number of foxes and in the relative number of females. Thus it was estimated that at the end of four years there ought to be more than 2500 females to less than 400 males. The statistics published in August, 1902, show, however, that at the end of the 1901 season there were only 690 females counted on the island, while there were 614 males. Explanations suggested are that more males than females are born, and that the females are not so readily trapped, as they are known to be more wary than the males. There has been, however, a distinct gain in the number of females, though there is no evidence yet that the fox is becoming polygamous. See ZOOLOGICAL LITERATURE; ZOOLOGICAL SOCIETIES.

BIRD PROTECTION. See ORNITHOLOGY.

BIRTH RATE. See VITAL STATISTICS.

BISMARCK ARCHIPELAGO, a German protectorate lying east of New Guinea, has an estimated area of 19,200 square miles and an estimated population of 188,000. The protectorate is administered by an imperial commissioner, stationed at Herbertshöhe, who also administers German New Guinea and the Caroline, Pelew, Marianne, and German Solomon islands. In the fiscal year 1900 imports were valued at 1,240,925 marks, and exports 907,282 marks. Of the latter 651,141 marks represented copra, and 110,634 marks trepang. The mark is worth 23.8 cents.

BLOCH, JEAN DE (Russian form Ivan Stanislavovich Blioch), a Polish-Jewish financier, economist, and military critic, who died at Warsaw, Poland, January 7, 1902, was best known as an advocate of universal peace. He was born at Radom, Poland, in 1836, and studied at the Industrial High School of Warsaw. Becoming interested in the construction of Russian railways, he took part in the building of the Great Russian Company's lines, organized the company of the Southwestern Railroads, and built the Ivangorod Dombrova and Landvarovo-Romny roads. Railway legislation was furthered by him, and he held the presidency of various lines. His volumes on matters of railway enterprise won for him continental recognition and an appointment to the committee of scholars in the ministry of finance. He was also foremost in the movement for Polish industrial advance, and almost constantly

occupied with philanthropy or scientific investigation among the poorer classes. A compendious publication in five volumes (with an atlas), comparing the general welfare of the Vistula and Western Great Russian provinces, contained a history of the Jews in Europe, and examined the origin of anti-Semitism. As a peace propagandist, Bloch became known by articles in French, German, and English periodicals, his war-and-peace museum at Lucerne, and more particularly his *Budushchaya Voina* (7 vols. 1898), translated in a much abridged form into English by R. C. Long as *The Future of War in Its Technical, Economic and Political Relations* (1899; in England, as *Is War Now Impossible?*). This work, which is said to have influenced Czar Nicholas II. to the issuance of the peace declaration resulting in the Hague Conference of 1899, elaborates with a wealth of often ill-arranged or irrelevant details the thesis that constant improvement in the art of warfare tends to the final impossibility of war. The principal argument holds that, under such conditions of improvement, any considerable war would result in the starvation of the hostile powers, and consequent revolution against, and destruction of, the respective states.

BOERS. See TRANSVAAL.

BOKHARA. See CENTRAL ASIA, RUSSIAN.

BOLIVIA, an interior republic of South America, lies between Brazil on the east and Peru and Chile on the west. The capital is La Paz.

Area and Population.—The eight departments and two territories (Purus and Madre de Dios) comprising Bolivia have an estimated area of about 734,000 square miles. The boundary dispute with Peru was still pending in 1902. In that year announcement was made of the settlement of the Brazilian boundary question, pursuant to which a large area was transferred to northern Bolivia. This area incorporates in Bolivia the upper Jurua and the upper Purus with their affluents including the Irahuaca, Embira, Acre and Hyuacu. The actual demarcation, however, had not been made. In his message to the congress, August 10, 1902, President Pando stated that the boundary question with Argentina had been settled and that a mixed commission was then in charge of the survey. In 1902 the results of the Bolivian census of September 1, 1900, were only partially available. The results published, however, indicated a population of about 1,853,400, though the inhabitants have been officially estimated at 2,313,750. Probably over 80 per cent. are Indians and nearly 80 per cent. of the remainder mestizos. The population of La Paz has been reported at 62,000; Cochabamba, 49,500; Sucré, 28,000. The state religion and that prevailing among the people is Roman Catholicism. Primary education is free and nominally compulsory. Some provisions are made for secondary and higher education.

Government.—The chief executive is a president, who is assisted by a cabinet of five members. The legislative power devolves upon a congress of two houses, the senate and the chamber of deputies. The president in 1902 was Gen. José Manuel Pando, who assumed office October 26, 1899, having been elected by a national convention of sixty members. The departments are administered by prefects. The regular army is reported to number about 2500, and the reserves about 80,000.

Finance.—The monetary standard is silver and the unit of value the boliviano, worth 42.8 cents on October 1, 1901, and 38.4 cents on October 1, 1902. Revenue is derived mainly from customs, and the largest items of expenditure are for war and public works.

Reports of actual receipts and expenditures are not available. The estimated revenue and expenditure for 1900 were 7,331,400 bolivianos and 7,930,188 bolivianos, respectively; for 1901, 7,965,350 bolivianos and 8,152,359 bolivianos, respectively; for 1902, 10,117,700 and 9,989,153, respectively. The total debt in 1901 was reported at 17,861,872 bolivianos, of which 4,004,020 bolivianos represented the internal debt.

Industries and Commerce.—Agriculture and mining are the principal industries, but each, in proportion to the capabilities of the country, is little developed. This lack of progress is due both to the character of the people and the difficulties of transportation. The chief vegetable product is rubber; others are cacao, cinchona, and coffee. Cereals and other foodstuffs are grown for domestic consumption. The most important mineral products are silver, tin, and copper. The values in bolivianos of imports and exports are stated as follows:

	1898	1899	1900	1901
Imports	11,897,245	12,839,962	13,344,114	16,953,224
Exports	27,456,677	27,365,747	35,657,690	37,578,211

The principal imports are cottons, woolens, provisions, hardware and machinery, cattle, alcoholic liquors, and clothing. In 1901 the leading countries from which imports were received were: Germany, 3,243,090 bolivianos; Great Britain, 2,291,851; France, 1,912,275; United States, 1,674,255; Chile, 1,663,907; Peru, 1,543,233; Belgium,

1,305,958; Italy, 679,368; Argentina 604,802. German imports are increasing. The exports for 1901 were classified as follows: Mining products, 26,855,426 bolivianos; agricultural products (including rubber), 9,688,513; manufactures (including stamped silver), 535,937; stock products, 373,503; miscellaneous, 124,832. The leading articles exported in 1901 were: Silver, 14,566,661 bolivianos; tin, 9,380,714; crude rubber, 9,151,824; bismuth, 1,463,088; copper, 1,112,599; stamped silver, 411,831; cacao, 259,513.

Communications.—Numerous railways are projected, but the only completed line is the Oruro, extending from that town to Antofagasta (Chile), 575 miles distant. From Unguni, 379 miles from Antofagasta, a branch line extends 22 miles to the Huanchaca mines. In the summer of 1902 track was laid to the 33d mile on the line building from Guaqui, on the Desaguadero River, to La Paz. Communication between western Bolivia and the northern river country is slow and difficult.

History.—In Bolivia the most important events during 1902 concerned the great rubber producing region of Acre, in the northern part of the republic. The subject was of such apparent importance that it had a place in three presidential messages, moved the Bolivian government to appeal for the intervention of the United States, and culminated in the mobilization of Bolivian troops near the end of the year. It was announced early in 1902 that the Bolivian government, through the instrumentality of Sir Martin Conway, the English explorer, practically made over the Acre region to an Anglo-American syndicate, the concessionaire named being Mr. F. W. Whitridge, of New York. The concession was approved by the Bolivian congress. The syndicate was to form a corporation, which would enjoy a large measure of autonomy, administering the country somewhat in the manner of the British chartered companies. Almost immediately the validity of this contract was denied by the Peruvian government, which, on the ground that the concession included territory claimed by Peru, entered protest with the representatives of the syndicate and with their governments. Still more embarrassing opposition was made by Brazil. Though Brazil had received from Bolivia an offer of 20 per cent. of the latter's interests in the syndicate for its good will in the matter of the concession, the Brazilian government was uncompromising. It is fair to assume that in no small degree this opposition was based upon the commercial disadvantage that the consummation of the syndicate plan would have for Brazilians. The reasons stated to the Bolivian government, in a note dated April 14, 1902, were that a part of the territory leased was still a subject of contention with Peru, and that in effect Bolivia had agreed to give up her sovereign rights in the Acre region by permitting the syndicate the use of military force, a concession that the government of Brazil could not approve. It appears that the attitude of both Brazil and Peru was to some extent actuated by fears, common also to other South American countries, that the establishment of the foreign corporation with semi-independent rights was only preliminary to direct interference on the part of the United States in South American affairs. Moreover, since the boundary, though agreed upon by treaty, was not yet marked, Brazil regarded it as highly probable that in the syndicate concession Bolivia had encroached upon Brazilian territorial rights. The keen resentment of the Brazilian government is seen in a note of the same date, April 14, asking Bolivia to withdraw the treaty of commerce and navigation which the latter had submitted for approval; while in June it was announced that Brazil had notified Bolivia that if the Acre concession were not rescinded, diplomatic relations would be broken off and interference with the commerce of Acre, by way of the Brazilian rivers, would ensue. This action led Bolivia on July 10, 1902, to appeal for intervention to the United States on the ground that American interests were endangered. The United States government replied that, while tendering its good offices, it would not interfere between Brazil and Bolivia, but would ask for all reasonable concessions with regard to the Americans forming a part of the syndicate. In his message to the Bolivian congress, August 10, 1902, President Pando, speaking of the Acre matter, said: "The government is convinced that it has acted correctly in this affair, and within the scope of its authority as a sovereign nation. Its first and principal object was to promote, subject to the principles of universal legislation, the organization of a corporation capable of developing those desert and unhealthful territories and of establishing a stable and just government for the benefit of the inhabitants of the same, without the participation of any foreign government in the plan, as has been falsely asserted, and without the preconceived intention of establishing only an American company." The president also stated that the syndicate had deposited a guaranty of £5000 and had a period of one year in which to form a company.

From the commercial point of view the subject of contention was the immense rubber resources of the Acre region and other parts of northern Bolivia, and doubtless to no small extent the Brazilian government was actuated by the interests of the inhabitants of the Brazilian state of Amazonas. Many of these people, crossing over from Brazil, have made large profits in exploiting the Bolivian rubber

forests and shipping the product down the rivers to the Amazon. The Bolivian government (in 1902) has customs houses on two of these rivers; but, it is asserted, the Brazilians have shipped rubber down the other rivers and thus evaded export duties. The concession to the syndicate would probably result in the forcing of the Brazilians out of the country, and probably the syndicate would establish custom houses on the free rivers; hence the indignation of the people of Amazonas. The rubber shipped from the Acre River and its affluents amounts to about 3500 tons a year, and that from the other rivers to about 5000 tons. This product is of the first quality and is sold in Europe as Pará rubber.

During the last few years this little known and less developed part of South America has attracted considerable attention. In the summer of 1899, it will be remembered, a revolution was brought about among the Brazilians in Acre by a Spaniard named Galvez, who controlled the country until bought off, it is alleged, by the Brazilian government in the following December. At this time the so-called republic of Acre was set up, but its president, it is also alleged, was bought off by Bolivia just as Bolivian troops reached Puerto Alonso (August, 1900). In October, 1902, the Brazilians in Acre, apparently influenced by the syndicate concession, again revolted against Bolivian authority. To operate against them the government in November organized an expedition of some 2000 men, who, it was thought, could not reach their destination until early in 1903. The expedition was commanded by President Pando.

BOND, Sir ROBERT, premier of Newfoundland since 1900, took part in the conference of colonial premiers in London in July, 1902, and later in the year successfully negotiated a reciprocity treaty between Newfoundland and the United States, with Secretary of State Hay at Washington, which was signed on November 8. He was born on February 25, 1857, at St. John's, Newfoundland, where his father had been for many years a leading merchant. He was educated at Queen's College, Taunton, England, and returned to Newfoundland, where he studied law and was admitted to the bar, but instead of practising entered political life and in 1882 was elected to the Newfoundland colonial assembly. In 1884-85 he was chosen speaker of the assembly, and in 1886 became the parliamentary leader of his party. In 1889 he entered the cabinet of Sir William Whiteway as colonial secretary, retaining the office until 1897, except for a short interval in 1894, when he was unseated and disqualified. Since his assumption of the office of colonial secretary he has been a stanch champion of Newfoundland's rights, has continually opposed all attempts to bring about its incorporation with Canada, and has consistently advocated closer relations with the United States. In 1890 he went to England as a commissioner to readjust the "French Shore" treaty, and in the same year negotiated with James G. Blaine, at Washington, the treaty known as the "Blaine-Bond convention," which failed because of the opposition of Sir John McDonald. In 1892 he represented Newfoundland at the Halifax conference on fisheries, was chairman of the Newfoundland delegation at the Ottawa conference in 1895, and was a delegate to the conference on the French fisheries treaties in London in 1901.

BORAX. See MINERAL PRODUCTION.

BORNEO, an East Indian island, has an estimated area of nearly 300,000 square miles and an estimated population of about 1,900,000. The northern part is under British protection; the remainder, comprising over two-thirds of the total area, is a possession of the Netherlands.

Dutch Borneo has an estimated area of 212,737 square miles, and an estimated population, exclusive of several districts as yet unexplored, of about 1,181,000. The interior is not well known and is practically under the control of the natives.

British North Borneo, a protectorate in the northeastern part of the island, under the jurisdiction of the British North Borneo Company, has an estimated area of 31,106 square miles and an estimated population of 175,000. In 1902 the British governor was E. W. Birch (since 1900). For the fiscal year 1900 the revenue and expenditure amounted to 587,226 dollars (Mexican) and 398,152 dollars, respectively; for 1901, 613,141 dollars and 364,468 dollars, respectively. Various tropical and subtropical products are exported, of which the most important is tobacco. Imports and exports in 1900 were valued at 3,178,929 dollars and 3,336,621 dollars, respectively; in 1901, 3,262,263 and 3,382,387. About 110 miles of railway were under construction in 1902. In June the main line had been completed for 92 miles from Brunei Bay through the interior to Jesselton, on Gaya Bay, and about 100 miles of earthworks finished. The completion of this railway promises considerable development in the tobacco industry. The imports and exports of Labuan, a small British island off the northwest coast of Borneo, were valued in 1900 at 1,112,184 dollars, and 746,931 dollars, respectively; in 1901, 1,836,000 and 1,093,000, respectively.

Brunei, on the north coast, is under British protection, but internally is admin-

istered by a native sultan, Hassim Jalud Alam Akamadin, who succeeded in May, 1885. The chief export is sago, but there is little trade and the revenue is small.

Sarawak, a British protectorate on the north coast southwest of Brunei, has an estimated area of 50,000 square miles and an estimated population of 500,000. It is administered by Rajah Sir Charles Johnson Brooke, who succeeded his uncle, Rajah Sir James Brooke, in June, 1868. Revenue and expenditure in 1900 amounted to 915,966 dollars (Mexican) and 901,172 dollars, respectively; in 1901, 1,064,318 and 953,818, respectively. The leading exports are pepper, sago, flour, gutta-percha, gold, and rubber. Imports and exports in 1900 were valued at 3,848,679 dollars and 5,217,036 dollars, respectively; in 1901, 4,404,644 and 5,900,925, respectively.

BOSNIA AND HERZEGOVINA, lying south of Hungary between Dalmatia and Servia, although nominally provinces of the Ottoman empire, have been since the Treaty of Berlin (1878) occupied and administered by Austria-Hungary. The total area including the sanjak of Novi-Bazar, which is occupied by an Austrian force although under Turkish civil administrators, is 23,571 square miles. The population in 1895 was 1,568,092. The army of occupation nominally numbers about 23,000. Sarajevo, with a population of 38,083, is the capital and largest city. The inhabitants are largely Croats and Servians. Adherents of the Orthodox Greek Church numbered 673,246 in 1895, of Mohammedanism 548,632, and of the Roman Catholic Church 334,142. The administration of the provinces is entrusted to the Austro-Hungarian minister of finance and exercised by him through a local provincial government. The revenue was estimated in the budget of 1902 at 44,846,281 kronen and the expenditure at 44,582,296 kronen. The krone is worth 20.3 cents. Although the country is largely agricultural, farming methods are old-fashioned and the productivity underdeveloped. The chief agricultural products are tobacco, a government monopoly, the output of which amounted to 3600 tons in 1900; cereals and dried fruits, of which 17,000 tons, valued at £210,000, were exported in 1900. The exports of cattle in 1900 were valued at £210,000. There are iron, coal, copper, quicksilver, and manganese mines, operated chiefly by the government. The output of coal in 1900 was 394,516 tons, and of iron 133,454 tons. There are no separate trade statistics, the provinces being incorporated in the Austro-Hungarian customs union. In 1901 there were 628 miles of railways in operation. In addition to a large number of sectarian schools, there is a graded system of government schools, including gymnasia in which education is free but not compulsory.

BOSTON PUBLIC LIBRARY, Boston, Mass., leads the libraries of the United States in circulation. During 1902 it issued for home use about 434,000 volumes from the central library on Copley Square, and about 1,050,000 volumes from the branch libraries, representing an increase in circulation over the previous year of about 160,000 volumes. At the end of 1902 the library contained about 835,000 volumes; some 72,000 persons held borrower's cards, over 50,000 drawing from the branch libraries. There are ten branch libraries and twenty-one delivery stations, thirteen of which have a collection of periodicals and reference books. Deposits of books are sent to 72 schools, 36 engine houses and 16 institutions. There were no notable gifts during 1902. Mr. Horace G. Wadlin is librarian in place of Mr. James L. Whitney, now chief of the statistical department.

BOTANICAL SOCIETY OF AMERICA, a national scientific society organized in 1893 as an outgrowth of the Botanical Club of the American Association for the Advancement of Science. At the ninth annual meeting held in Washington, D. C., December 30, 1902, the society passed a resolution to set aside from its income every year the sum of $500, to be used in making grants in aid of scientific investigations. An amended constitution was adopted. President, Charles Reid Barnes, University of Chicago; secretary, Dr. D. T. MacDougall, New York Botanical Society, Bronx Park, New York City.

BOURINOT, Sir John George, clerk of the Canadian House of Commons, died at Ottawa, October 13, 1902. He was born in Sydney, N. S., October 24, 1837, the son of a former Canadian minister, Hon. J. Bourinot. After studying in Trinity College, Toronto, and in Nova Scotia, he entered journalism as parliamentary reporter for various Canadian newspapers, and was for many years the editor of the Halifax *Reporter*, which he established in 1860. In 1880 he became clerk of the Dominion House of Commons, and by many books, and contributions to magazines, won recognition as an authority upon the constitutional history and parliamentary practice of Canada. He was a prominent member of the Royal Society of Canada, of which he had been president, and after 1882 was honorary secretary. His best-known works are: *Canada* (in "Story of the Nations" series), *Parliamentary Procedure and Government in Canada; How Canada Is Governed;* and *Cape Breton and Its Memorials of the French Régime.*

BOURKE, Robert, first Baron Connemara, a British statesman, died in London, September 3, 1902. He was born at Hayes, County Meath, Ireland, June 11, 1827,

was educated at Trinity College, Dublin, and was called to the English bar in 1852. In 1868 he was elected a Conservative member of the House of Commons for Lynn Regis, and sat for that borough eight years. Disraeli, always on the lookout for promising subordinates, made him under secretary of state for foreign affairs in his administration in 1874. After the defeat of Disraeli's ministry (1880), Bourke was sent as a commissioner to settle the terms of Turkey's foreign debt, and in 1885, after the defeat of Mr. Gladstone's administration, he was again appointed under secretary for foreign affairs. During 1887-91 he was governor of Madras. In 1887 he was raised to the peerage as a reward for official service.

BOWDOIN COLLEGE, Brunswick, Me., founded 1794. The college had in 1902 an attendance of 391, excluding names counted twice, 275 in the academic department and 124 in the medical school, an increase over 1901 of about 20 in each department. The faculty numbers 40. The endowment was increased about $73,000 by the receipt of gifts. The most noteworthy change in the college was the completion of the new Hubbard Hall, a building which is to be devoted to the use of the library for books, for general reading rooms, and for conference rooms for students, and also for some of the administrative departments of the college. The library, which is excellently adapted to its purposes, was built at a cost of $300,000 by Gen. Thomas H. Hubbard, of New York. It will be ready for occupancy in May, 1903. A large amount of money has recently been invested in college buildings by friends of the institution and its faculty and endowment have been doubled in the last ten years. The curriculum has been greatly enriched in the matter of electives. The gross income for 1900 was $60,745. The library contains 73,195 bound volumes. President, W. D. Hyde, D.D.

BOWEN, Herbert Wolcott, United States minister to Venezuela since 1901, became a prominent figure in international affairs in the closing weeks of 1902 by reason of his participation in the negotiations between Venezuela and the allied powers (Great Britain, Germany, and Italy). He was born in Brooklyn, N. Y., February 29, 1856, the son of Henry C. Bowen, editor and founder of the *Independent*, and Lucy Tappan Bowen, daughter of Lewis Tappan, merchant and abolitionist. He was educated in the Woodstock (Conn.) Academy, and at the Brooklyn Polytechnic Institute, and after spending two years traveling with a tutor in Europe, returned to America and entered Yale University with the class of 1878, of which William H. Taft, governor of the Philippines, and William H. Hunt, governor of Porto Rico, were members. Leaving before graduation, he passed a year in Italy, and then returned to enter Columbia Law School, where he graduated *cum laude* in 1881. In the same year he was admitted to the bar. He practised law in New York City until 1890, when he was appointed by President Harrison United States consul at Barcelona, Spain. From that time he has been continuously in the service of the State Department. In 1895 he was promoted by President Cleveland consul-general at Barcelona. Here he remained until April, 1898, being for several weeks previous to the outbreak of hostilities against the United States in constant danger of assassination. He stayed in Barcelona until the day after the declaration of war, and was the last American official to leave the country. After the conclusion of peace, when he was on the point of returning to Barcelona, President McKinley appointed him minister-resident to Persia, to succeed his brother-in-law, Arthur Sherburne Hardy. In Persia he received marked expressions of regard from the Shah, and before he left his rank had been changed to that of envoy extraordinary and minister plenipotentiary. In June, 1901, President McKinley transferred him to the post of minister to Venezuela to succeed Francis B. Loomis, who had become *persona non grata* to the Venezuelan government because of his action in the asphalt controversy. At Caracas he was able to render services of great value because of his having completely won the confidence of President Castro. He is the author of several books of verse, and of an *International Law* (1898). See Venezuela (paragraphs on History).

BOWLING. The second annual tournament of the American Bowling Congress, which is now considered the authoritative body in this sport, was held at Buffalo, N. Y., January 20-24, 1902. The individual championship was won by F. Strong, Chicago, with 649 pins for three games. J. Koster, New York, was second with 647 pins, and J. Berlin, of Chicago, third, with 643. The two-men team championship went to McLain and Steers, Chicago, 1237 pins for three games. Dysinger and Krug, of Los Angeles, were second with 1220, and Elwert and Funke, Belleville, Ind., third, with 1169. The five-men team championship was won by the Fidelia team of New York City, with 2792 pins for three games. The second team was the National of New York, with 2782 pins, and the third the Rosedale, also of New York, with 2724. In September, 1902, the New York Bowling Association was formed for the purpose of governing the game in the greater city.

BOXING. The winners of the championship boxing contests of the Amateur

Athletic Union held during 1902 were as follows: One hundred and five pounds, W. Schumaker; 115 pounds, Fred. Berg; 125 pounds, Joe McCann; 135 pounds, J. Dillon; 145 pounds, Charles McCann; 158 pounds, William Rodenbach; heavy-weight, Emery Payne. In pugilism, James Jeffries retained the championship of the world by knocking out Robert Fitzsimmons in the eighth round on July 25, 1902, at San Francisco. The bantam-weight championship was won by Harry Forbes at St. Louis, Mo., January 23, who defeated Dan Dougherty in four rounds; and the light-weight championship by Joe Gans who defeated Frank Erne in one round at Fort Erie, Ontario, May 12.

BOYNTON, James Stoddard, thirty-third governor of Georgia, died December 22, 1902. He was born May 7, 1833, in Henry County, Ga., where he was admitted to the bar in 1852. He settled in Monticello, removed to Jackson in 1858, and was elected ordinary of Butts County in 1860. At the outbreak of the Civil War he entered the Confederate service as a private, and later rose to the rank of colonel of the Thirtieth Georgia infantry. After the war he resumed his legal practice at Griffin, Ga., of which he became mayor in 1869. He was president of the State senate from 1880 to 1884, and acting-governor after the death of Alexander H. Stevens in 1883. In 1886 and 1890 he was elected judge of the superior court of Georgia, and in 1893 resigned to become division counsel of the Central Georgia Railroad, which office he held until the time of his death.

BRAZIL, the largest republic in the world except the United States, occupies the central and eastern part of South America. The capital is Rio de Janeiro.

Area and Population.—The area of Brazil has been estimated at about 3,218,000 square miles. In 1902 announcement was made that the Bolivian boundary between the Madeira and Javari rivers had been determined; this settlement decreased Brazil's area by many thousand square miles. According to the census of 1890 the population was 14,333,915. In 1900 a census was taken, but its results, showing a decrease in population, were not believed to be accurate and so were not adopted. According to a statement published in 1902 by the statistical bureau of the state of São Paulo, the population in 1900 was 21,565,000, distributed as follows:

Minas Geraes	4,277,000	Alagoas	781,000	Rio Grande do Norte	407,000
Bahia	3,335,000	Federal District	750,000	Santa Catharina	405,000
São Paulo	2,520,000	Maranhão	660,000	Paraná	380,000
Pernambuco	2,089,000	Pará	652,000	Goyas	340,000
Rio Grande do Sul	1,350,000	Parahyba	596,000	Amazonas	240,000
Rio de Janeiro	1,300,000	Sergipe	450,000	Espirito Santo	201,000
Ceara	1,000,000	Piauhy	425,000	Matto Grosso	157,000

The prevailing religion is Roman Catholicism. Education, which is nowhere compulsory, is in a very backward condition.

Government.—The executive authority is vested in a president, who is assisted by a cabinet of six members who are appointed by and responsible to himself. The president for the four-year term ending November 15, 1902, was Senhor M. F. de Campos Salles; he was succeeded by Senhor Francisco de Paula Rodrigues Alves. The national legislative body is a congress of two houses, the senate and the chamber of deputies. The several states enjoy local self-government.

The active army numbers about 15,000 officers and men. The navy is reported to comprise 2 third-class battleships, 2 second-class cruisers, 2 third-class cruisers, 3 torpedo cruisers, 8 first-class torpedo boats, and a number of smaller or older craft.

Finance.—The monetary standard is gold and the unit of value the milreis, worth 54.6 cents; the value of the paper milreis in 1902 was about 24 cents. The chief source of revenue is duties on imports and the largest items of expenditure are for the departments of finance and public works. The estimated revenue and expenditure have been reported in milreis as follows:

	Revenue.		Expenditure.	
	Gold.	Paper	Gold.	Paper.
1900	53,975,543	312,968,000	36,973,646	263,162,276
1901	56,870,641	286,092,200	37,510,000	244,514,000
1902	42,876,667	257,461,000	33,555,000	224,515,000
1902	43,123,942	255,543,000	42,593,070	238,489,192

In his last message to congress, May 3, 1902, President Campos Salles contrasted the financial condition of the government at the time he assumed office, November 15, 1898, with its condition in 1902. At the earlier date gold payments were suspended; paper money in circulation amounted to 788,364,000 milreis, with the milreis worth about 14.55 cents; Brazilian bonds were at 50 per cent. discount; the amount needed for redemption of the funding loan was 115,997,000 milreis; the amount due

on the 1897 loan was £1,122,083; £274,694 were due for war material; the treasury owed 11,000,000 milreis to the Bank of the Republic; and treasury notes amounting to 20,350,000 milreis were in circulation. Against this indebtedness there were only 5,500,000 milreis in the treasury and £81,713 in the London agency. Gold payments on the foreign debt had been resumed in July, 1901; the paper circulation at the time of the message had been reduced to about 681,000,000 milreis, while the value of the milreis had risen to about 24.28 cents; Brazilian bonds were worth about 85, all the treasury notes had been withdrawn, and the 1897 loan had been paid; at the existing rate of exchange there was a surplus of about 80,000,000 milreis currency. In 1902 the government was still endeavoring to increase the value of the paper milreis by providing, through the 25 per cent. of customs collected in gold, for the prompt gold payment of interest on the public debt and by reducing the amount of paper money in circulation. Any advance in the value of the paper milreis means an increase in the actual value of the customs receipts. The government is trying to improve its finances also by buying railways, on which it had guaranteed interest charges, and leasing them at an advantage, and by curtailing expenses and imposing additional taxation. Throughout 1902 financial and industrial conditions, though improved, as shown by the president's report, nevertheless continued unsatisfactory.

The national debt, at the beginning of 1901, is stated as follows: Foreign consolidated, 394,686,449 milreis; internal consolidated (gold), 27,259,000 milreis; total gold debt, 421,945,449 milreis ($230,382,215). The paper debt amounted to 1,398,403,972 milreis, composed as follows: Internal consolidated, 543,826,637 milreis; floating, 165,577,335 milreis; paper currency, 689,000,000 milreis.

Industries and Commerce.—The principal industry is agriculture, though only a small part of Brazil's area, is under cultivation. The leading product is coffee, while others of importance are rubber, sugar, tobacco, maize, yerba maté, cotton, cacao, beans, and nuts. In the coast districts factories, especially for the production of cotton goods, flour, and alcoholic beverages, are increasing. The estimated coffee production for the year ending June 30, 1902, was 16,000,000 bags of 60 kilogrammes (132¼ pounds); of these 10,149,327 were received at Santos, and 4,971,686 at Rio de Janeiro. In recent years the fall in coffee prices, consequent upon overproduction, has been one of the most disturbing factors in Brazil's economic condition. At a meeting of the Agricultural Society of São Paulo, held in July, 1902, resolutions were adopted looking toward the relief of the coffee industry, including temporary restriction of the area planted to coffee, prohibition of the exportation of inferior coffee, and negotiation of commercial treaties reducing import duties on coffee. Rubber is the most important product of the Amazon Valley; for years ending June 30, the export has been: 1900, 26,881 tons; 1901, 27,680 tons; 1902, 29,997 tons. Of this last amount 15,931 tons went to Europe and 14,066 tons to the United States; 14,668 tons came from Manãos, 13,925 from Pará, and 1404 from Iquitos (Peru). Mining is little developed, though gold and diamonds are produced to a considerable extent; from the state of Minas Geraes 4,012,221 grammes of gold were exported in 1901.

The principal imports include cotton and woolen goods, iron and steel goods, provisions, alcoholic liquors, and coal. Among the leading exports, besides those mentioned above, are sugar, cotton, tobacco, and cacao. The currency values of imports and exports, exclusive of specie, in 1897 were 671,603,280 milreis and 831,806,918 milreis respectively; in 1901, according to the *Serviço de Estatistica Commercial* of Rio de Janeiro, imports amounted to 415,053,516 milreis (about $95,462,000), and exports 860,826,969 milreis (about $197,990,000). Commerce by countries of greatest trade importance is reported in milreis (paper) as follows for 1901:

Countries.	Imports from	Exports to	Countries.	Imports from	Exports to
Great Britain and possessions	130,278,411	111,487,400	Germany	39,080,606	126,749,284
Argentina	56,173,430	19,218,773	France	33,263,299	100,338,297
United States	51,635,665	371,147,265	Uruguay	27,085,441	9,999,657
			Portugal	26,928,540	5,091,239

In 1900 there were 9172 miles of railway in operation and 14,893 miles of telegraph line, with 27,721 miles of wire. Of the telegraph lines the government owned 12,769 miles, with 25,318 miles of wire.

History.—On March 1, 1902, Senhor Francisco de Paula Rodrigues Alves and Senhor Silviano Brandão, as candidates of the Republican party, were elected president and vice-president, respectively. Senhor Alves was inaugurated November 15, 1902; Senhor Brandao died in the preceding month. The new president, who was governor of São Paulo and had been a federal senator and minister of finance, is

regarded as an able financier. He announced that in general he would adopt the policies of his predecessor. His cabinet, which came into power with him and which inspired general confidence, comprised: Senhor Rio Branco, minister for foreign affairs; Senhor Seabra, justice and the interior; Senhor Bulhoes, finance; Field-Marshal Argollo, war; Admiral de Noronha, navy; Senhor Mueller, communications, public works, and education. On the occasion of the departure of the retiring president, Senhor Campos Salles, from the capital on November 15, riotous demonstrations took place against him and against some of the newspaper offices. Troops charged the rioters, with the result that one person was killed and several others injured, and numerous arrests were made.

The treaty referring the question of the boundary between Brazil and British Guiana to the arbitration of the king of Italy and signed by Lord Lansdowne, British foreign minister, and Senhor Joaquin Nabuco, Brazilian minister at London, on November 6, 1901, was proclaimed January 28, 1902. The territory in dispute is bounded on the west by the Cotinga and Takutú rivers, which are confluent, and on the east by the Rupununi River; the northern limit is the watershed running eastward from the source of the Cotinga to a point near Mount Ayangcanna, and the southern limit the line connecting the source of the Rupununi with that of the Takutú.

For a number of years the large German populations in the extreme southern states, Rio Grande do Sul, Santa Catharina, and Paraná, have called forth much comment, of which the general purport is that they are destined to break away from Portuguese rule. Discussion continued in 1902, and was made especially prominent by the German colonial conference, convened in Berlin on October 10. Although the German government officially disclaimed any desire of acquiring territory in Brazil, it made no effort to check at the conference this sentiment voiced virtually by Dr. Robert Jannasch, the well-known geographer and commercial expert, and approved by many of his associates and a large part of the German press. It was urged that German emigration be directed to southern Brazil, apparently in the hope that the Germanized territory would declare itself a colony of the empire or a republic in strict alliance therewith. The former suggestion was regarded by many American supporters of the Monroe doctrine as purely visionary, and indeed in 1902 there was a tendency in the United States to treat with lessening seriousness the question of the "German peril" in Brazil; at the end of the year, however, the Venezuelan imbroglio evoked considerable discussion of Emperor William's alleged designs upon South America. And it should not be overlooked that through the medium of steamship lines, railways, banks, factories, and other enterprises, Germany is not failing to take advantage of her commercial opportunities in southern Brazil.

BRETT, John, an English seascape painter, died at Putney, England, January 7, 1902. He was born in 1831, and from 1856 to 1901 contributed one or more pictures to every exhibition of the Royal Academy. His early work, especially "The Stonebreaker" (1858), was warmly admired by Ruskin for its brilliant coloring and delicate finish—characteristics of the majority of his pictures. The most admired now of his paintings are views among the Cornwall and Channel Islands. Some of his better known pictures are: "Spires of Channel Islands" (1875); "Cornish Lions" (1877); "Carnarvon Bay" (1878); "Britannia's Realm, Sandy Shallows of Seashore" (1880); "Yellow Sands, Welsh Dragons" (1883). In 1881 he was elected an associate of the Royal Academy.

BRIDGE BUILDING. The building of new bridges to replace those that have become too light for modern heavy traffic and for the purpose of opening up new routes for transportation goes on so ceaselessly that one year possesses little more of note than another in this regard. In several respects, however, the year 1902 was a notable one even when compared with the remarkable records of preceding years. In the United States particularly the number of bridges of the first rank in size and importance which were projected or under construction during the year was unusually large. The greater number of these structures were designed for railway purposes, but a few, and these including the very largest, were for street traffic. An enumeration of these structures shows examples of about every type of bridge that engineers now recognize as good practice.

In *suspension bridge* construction the two great 1600-foot span structures now in process of construction across the East River, New York City, easily rank at the head. The older of these two bridges, formerly known as the New East River Bridge, was officially renamed the Williamsburg Bridge during the year, and at the same time the younger was named the Manhattan Bridge. The principal work done on the Williamsburg Bridge during 1902 was the spinning of the four steel wire suspension cables, and the close of the year would undoubtedly have witnessed the practical completion of this work had it not been for the untoward accident of fire which occurred at the top of the Manhattan tower on November 11, 1902, and which

damaged two of the cables so much that quite extensive repairs were rendered necessary. Each of the four cables of this bridge is composed of 7,696 steel wires 3-16 inch in diameter. These wires are grouped in strands, there being 208 wires in each strand and 37 strands for each cable. In construction each strand was laid up as one continuous wire looped around two end pins just as a skein of yarn would be looped on the hands held apart. When all the strands were completed they were bunched together into a cylinder and held in that position by circular steel clamps which carry the suspender ropes. To permit of this work a pair of suspension foot bridges, one under each pair of main cables, was built between the two towers. At the time of the fire the spinning of all four cables had been completed and the suspender clamps were in place. Work had also been begun in placing the protective coating and the steel jackets designed to shield the cable wires from the weather. The fire occurred on the Manhattan tower just where the cables bend over the tower saddles, and resulted from the ignition of the timber shanties and other combustible materials used by the contractors at that point. It swept over the two southernmost cables heating and weakening the exposed wires. In one cable 500 wires were injured, and in the other 200 wires. Tests made on the injured wires showed that a loss of strength and elasticity had resulted, which made one cable 2½ per cent. weaker, and the other 6½ per cent. weaker than before the fire. To repair these damages the engineers proposed to cut out the injured portions of the wires and to splice in new pieces of wire. By doing this it was estimated that one cable would be only 0.25 per cent. weaker and the other only 2½ per cent. weaker than the original strength, and to make up this it was proposed to reenforce the cables by adding new wires. As repaired, it is estimated that the cables will be quite as strong as they were originally. Perhaps the most novel feature of the cable construction for the Williamsburg Bridge and the feature that distinguishes it from previous cable building, was that of using a cloth wrapping and steel jacket to protect the cable from the weather. In previous parallel wire suspension cables the wrapping has consisted of fine wire wound tightly around the cable, like thread on a spool, and then painted. Besides the cable work, there was steady progress during 1902 on the construction of the approaches and contracts were let for the construction of the suspension span. The work on the Manhattan Bridge during 1902 was confined to the foundations for the Brooklyn tower, but contracts were let for constructing the Manhattan tower foundations. This last foundation will consist of a timber caisson 78 x 144 feet in lateral dimensions, which is to be sunk by the compressed air process. The Brooklyn tower caisson was of substantially the same dimensions. Probably the most notable announcement made during the year in connection with this work was that of Mr. Gustav Lindenthal, commissioner of bridges, of New York City, that suspension cables of forged steel eye-bars would be employed. While this was a common form of cable construction in early suspension bridges, it has never before been proposed for a span of so great a length as 1,600 feet.

For very long spans the *cantilever bridge* is the only type of bridge that is in any sense a rival of the suspension bridge, and the year 1902 saw a number of structures of the cantilever type in process of construction. The most notable of these, in all respects, was the 1,800-foot span in process of construction over the St. Lawrence River about 6½ miles upstream from Quebec, Canada. The river at the point where the bridge will cross it is 1,900 feet wide at low tide and 2,000 feet wide at high tide. The maximum depth of water in the channel is 180 feet, but the river shallows rapidly toward the banks, so that at the points where the two main piers are built, 1,800 feet apart, it is only 10 feet deep at low tide. Besides the 1,800-foot centre span there are a 500-foot and a 210-foot span on each side of the river. The bridge will carry a double-track railway between the main trusses 62½ feet apart, and a trolley track and roadway outside of these trusses on each side of the bridge. The depth of the main trusses at the centre is 120 feet, and at the piers is 330 feet. In considering these figures it will perhaps aid to a full understanding of their significance if we remember that the main spans of the Forth Bridge in Scotland, hitherto the giant among bridge structures, are 1,710 feet long, or 90 feet shorter than the span of the Quebec Bridge. The Forth Bridge, however, has two spans of the great dimension stated, and is exactly 2,030 feet longer from end to end than its Canadian rival. At the end of 1902 the foundation structure for the Quebec Bridge was practically completed. It is, perhaps, of interest to note here, also, that the superstructure for this giant structure is to be built by a United Sates firm, the Phœnix Bridge Company, of Phœnixville, Pa. Another Canadian bridge enterprise of great magnitude is the proposed bridge across the Straits of Canso between Port Hastings and Cape Porcupine, Nova Scotia. The general plans prepared during 1902, call for a double-track railway cantilever bridge of 1,800 feet clear span. In the United States there were four cantilever bridges of unusual spans approaching completion at the end of 1902. All but one of these were railway bridges and two of them were being built by one company, the Wabash Railroad, on the new extension of its line to

LUXEMBOURG BRIDGE

Courtesy, Engineering News

Pittsburg, Pa. The longer of these two bridges crosses the Monongahela River at Pittsburg, and is 1,504 feet long from end to end, and has an 800-foot main span; the shorter crosses the Ohio River, at Mingo Junction, O., and has a 700-foot centre span and two end spans each 298¼ feet long. In total length, both of these bridges are exceeded by the 2,750-foot bridge over the Mississippi River at Thebes, Ill., but the longest clear span of the Thebes Bridge is only 671 feet. The fourth bridge of the number mentioned above is a highway bridge across the Ohio River at Marietta, O., which has a main span of 650 feet. Besides the four bridges which were drawing toward completion at the end of 1902, there remains to be mentioned the cantilever bridge designed to cross the East River at Blackwell's Island, New York City. This structure is designed to have a main span of 1,131 feet, and during the year work was in active progress on the foundations.

The most notable bridges of the *braced girder* type included in the work of 1902 were the Pennsylvania Railroad Bridge across the Allegheny River at Pittsburg, Pa., and the combination highway and electric railway bridge over the Missouri River at St. Charles, Mo. The St. Charles Bridge consists of four spans of the following lengths: 417 feet 7½ inches; 419¼ feet (two), and 301 feet 7½ inches. The Pennsylvania Railroad Bridge is a four-track, double-deck bridge with four lines of girders and a main span 337½ feet long. In India, the Godavari Bridge on the East Coast Railway, and notable chiefly because of its great length, was completed early in 1902. This bridge has fifty 150-foot braced girder spans, and a total length of 9,096 feet. A highway bridge having two channel spans of 380 feet each was also built across the Mississippi River at Dubuque, Ia., in 1902. Except for the fact that this structure adds another to the list of bridges crossing the Mississippi River it is of no particular importance.

In *steel arch bridge* construction the most notable work of the year 1902, was furnished by the republic of Costa Rica in the Rio Grande Bridge crossing the river of that name about 26 miles west of San José on the line of the Pacific Railway. This was a two-hinged braced arch structure of 450 feet span and was built by an American firm. In the United States several arch spans were included in the year's steel bridge construction, but they were all of comparatively short span. Among these the two following perhaps deserve to be noted: A three-hinged arch of 207 feet span over the Menominee River on the Chicago, Milwaukee and St. Paul Railway, near Iron Mountain, Mich.; a three-hinged spandrel braced arch bridge of two 164-foot spans on the Cleveland, Elyria and Western Railway (electric), near Birmingham, Ohio. In France, the Viaur Viaduct was formally completed during 1902, although its construction more properly belongs to the records of previous years. This is a three-hinged steel arch of 721 feet span.

In *drawbridge* construction the most notable enterprise of 1902 was the beginning of work on a 520-foot swing span across the Missouri River at Omaha, Neb. Some ten years ago a swing span of the same length was erected at this point and connected by temporary structures with the shore on each side of the river. When the first swing span was erected it was intended at some future time to replace its temporary shore connections with a permanent structure and this work was begun in 1902. The novelty of the project consists in constructing a second swing span end to end with the first. The purpose of this unusual plan was to cover the full width of the river by the swing spans so that no shifting of the channel would shut off navigation. The new span is much heavier than the old one, and several of its details are novel. No swing bridge span of greater length than 520 feet has ever been built. Several *bascule* bridges were included in the work of 1902, but none of unusual length of span. There was also built at Duluth, Minn., a ferry bridge, consisting of two high towers, the tops of which are connected by a braced girder span. This span serves as a track for a carriage from which a platform or car is hung at the level of the streets approaching the bridge. This carriage with its car is moved back and forth along its track and thus carries the car to and fro between the river banks. The span of the bridge is 393¾ feet. Similar bridges have been built at a number of places in Europe, but this is the first to be constructed in the United States.

In *masonry arch bridges* built during 1902, lead is taken by the great 277-foot stone arch at Luxemburg, which was drawing toward completion as the year closed. No other stone arch bridge work undertaken during 1902 was of unusual character. In *concrete-steel* construction the most striking example of the year was the so-called Y-Bridge at Zanesville, Ohio. In plan, this bridge has the form of a letter Y. It has eight spans, three of 81 feet, one of 99 feet, one of 120.6 feet, and three of 122 feet. Each span is an arch of concrete embedding a metal skeleton.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE. See ADVANCEMENT OF SCIENCE, BRITISH ASSOCIATION FOR THE.

BRITISH CENTRAL AFRICA, a large territory in southern central Africa, extending from the Zambesi northward to Lake Tanganyika, is administered, with the

exception of the British Central Africa Protectorate, by the British South Africa Company, under the name of Northern Rhodesia. See the following article, RHODESIA, and CAPE-TO-CAIRO RAILWAY.

BRITISH CENTRAL AFRICA PROTECTORATE, formerly known as Nyassaland, and lying between Lake Nyassa and Northern Rhodesia, has an estimated area of 42,217 square miles and an estimated population of about 900,000. The protectorate is administered by an imperial commissioner, Mr. Alfred Sharpe, resident at Zomba. In 1902 a high court was established by an order in council in and for the protectorate. Revenue and expenditure in the fiscal year 1901 amounted to £49,215 and £78,366 respectively. The principal export is coffee, but sugar, cinchona, tobacco, and other products are also cultivated. Imports and exports were valued in the fiscal year at £146,063 and £38,723 respectively; in 1902, £135,842 and £21,739 respectively. There is a considerable transit trade. It is expected that a railway, for the construction of which a contract was made in November, 1901, will connect Blantyre with Chiromo by the end of 1903.

BRITISH COLUMBIA, a province of Canada, has an area of 383,300 square miles and a population of 178,657, according to the census of 1901, as compared with 98,173 in 1891, showing 81 per cent. increase, the largest of any Canadian province. Capital, Victoria, with a population of 20,821 in 1901, as against 3,980 in 1891. The public-school system is free and undenominational. In 1901 there was a total enrollment of 23,615 pupils; the teachers numbered 528.

Government and Finance.—A lieutenant-governor, aided by a responsible cabinet, administers the province. There is one legislative chamber of 38 members elected by manhood suffrage. British Columbia has 3 members in the Dominion senate and 7 in the house of commons. The finances of the province do not seem to be in a very prosperous condition. The revenue for the year ending June 30, 1901, was $1,605,920, and the total expenditure $2,407,492—a gross deficit of $801,572, and, with a deduction for sinking fund investment and loan redemption, a net deficit of $681,901. The chief sources of revenue were, in addition to $242,689 received from the Dominion, general mining receipts, $154,270; free miners' certificates, $93,510; revenue tax, $101,196; real property tax, $121,707. The chief items of expenditure were interest on public debt, $255,393; civil government, $232,013; education, $313,507; public works, $754,637. The total assets of the province for the fiscal year 1901 were $3,377,-140, and the total liabilities $9,827,605.

Industries and Commerce.—Mining is the chief industry of the province. The total value of the mineral output for the calendar year 1901 was $20,086,780, as compared with $16,344,751 for 1900. The chief minerals produced were gold, $5,318,703; silver, $2,884,745; lead, $2,002,733; copper, $4,446,963; coal, $4,380,993; and coke, $635,-405. British Columbia ranks next to Nova Scotia in the value of its fisheries. The trade of the province in the fiscal year 1902 was less than in the preceding year, the exports being $18,385,335, as compared with $21,648,191 in 1901, and the imports $10,391,256, as compared with $11,137,438 in 1901.

History.—In January, 1902, Premier James Dunsmuir, preparatory to appealing to the province in a general election, declared his policy to be chiefly a demand for more subsidizing of railways by the Dominion. The provincial legislature was opened on February 20, and it was announced officially that a railway would be subsidized from Yellowhead Pass, on the eastern boundary of the province, to Bute Inlet, on the Pacific Coast, there to be connected with the Vancouver Island Railway. The chief questions that agitated the province after the legislative session were the bad financial conditions of the province, the increase of the public debt, which is now $6,407,757, and whether better terms could be secured from the Dominion government. The disallowance of anti-Japanese legislation was effective in inducing the province to modify the provisions against Japanese immigrants, and the treaty of alliance between Great Britain and Japan was instrumental in securing this result. Fourteen railway charters containing provisions hostile to the Japanese were changed. Some of the mines were closed during the summer by reason of strikes, but they were subsequently opened. At the general elections the Dunsmuir government was defeated, and Mr. E. G. Prior became premier. He announced a vigorous policy of railway building, the object being to construct a line from the Pacific Coast to join at Yellowhead Pass on the eastern boundary of the province, the Canadian Northern Company's line now being built from Lake Superior.

BRITISH EAST AFRICA. See EAST AFRICA, BRITISH.

BRITISH GUIANA, a colony of Great Britain on the northeastern coast of South America, has an estimated area of 120,000 square miles. The estimated population at the beginning of 1901 was 294,943, of whom the majority were negroes and East Indians. Immigration of the latter continues, the number for the year 1900-01 being 4,470. The capital is Georgetown. The colony is administered by a governor (Sir James Alexander Swettenham, since 1901), who is assisted by an executive

council and committees (courts) of appointed and elected members. For 1901 the revenue and expenditure amounted to £509,950 and £505,542 respectively; for 1902, £531,506 and £522,631 respectively. The public debt in 1902 amounted to £922,120. The principal product is sugar, but of late increasing interest has been shown in the cultivation of other crops. Land grants in the fiscal year 1900 aggregated 10,925 acres, and in 1901 11,314 acres. In the fiscal year 1901 the imports and exports were valued at £1,393,529 and £2,068,406 respectively; in 1902, £1,414,769 and £1,833,624 respectively. The leading export is sugar. Gold production in the fiscal year 1901 yielded £393,083, and in 1902 £371,492. About half of the total trade is with Great Britain and about two-fifths with the United States. There are about 94 miles of railway.

BRITISH HONDURAS, or BELIZE, a crown colony of Great Britain lying east of Guatemala on the Caribbean Sea, has an area of 7,562 square miles. According to the enumeration of 1901, the population was 37,479. The capital is Belize. The colony is administered by a governor (Sir David Wilson, since 1897), assisted by an executive and a legislative council. Revenue and expenditure in 1900 were $289,728 and $246,201 respectively; in 1901, $277,038 and $249,326 respectively. Imports and exports in 1900 were valued at $1,198,772 and $1,300,565; in 1901, $1,227,202 and $1,387,598. Included in these exports was a value of $323,405 in transit in 1900 and $493,430 in 1901.

British Honduras was the only British colony in which the coronation festivities planned for June, 1902, were carried out. Through the lack of cable service, news of King Edward's illness did not reach the colony until after the date set for the coronation. This incident called attention to the small progress the colony has made. There is no railway, telegraph, telephone, cable, or, outside of the capital, even a cartroad. It is stated that the efforts of the inhabitants to construct a railway from Belize to the Guatemalan frontier, through a practically flat country, by providing £75,000 and making a land grant of 200,000 acres, are blocked by the crown agents for the colonies, who want to undertake it themselves at a cost of £700,000, a sum which the merchants and colonists cannot meet.

BRITISH NORTH BORNEO. See Borneo.

BROOKLYN INSTITUTE OF ARTS AND SCIENCES, organized in 1824 as the Brooklyn Apprentices' Free Library, was re-incorporated in 1843 under its present title. In 1890 the charter was amended. The lectures delivered on the arts and sciences in connection with the institute's twenty-eight departments during 1902 exceeded 500 in number, and in addition there were instructive conferences, concerts, dramatic readings, etc. Work on the museum building, which has been in progress for some time, was materially advanced during that year, when a contract for interior work, amounting to $274,500, was awarded by the city park department. The city board of estimate and apportionment also authorized the expenditure of $150,000 for the erection of a power-house and power-plant equipment for the museum. The presentations made to the institute in 1902 were numerous, the money donations alone amounting to over $80,000. During 1902 the total attendance at the lectures, exhibitions, exercises, etc., was 452,803; the total income, $146,077.52. The institute issues a comprehensive and instructive *Year Book*. President of the board of trustees, A. Augustus Healy; secretary, George C. Brackett, 502 Fulton Street, Brooklyn.

BROOKS, Eldridge Streeter, an American author, died January 7, 1902, at Somerville, Mass. He was born April 14, 1846, in Lowell, Mass., and studied at the Free Academy, now the College of the City of New York. As an author of books for boys he gained wide popularity. These works, mainly of a patriotic and historical nature, were produced with remarkable facility, aggregating about seventy titles. He was engaged in the book trade in connection with various publishing houses from the time he was nineteen, was editor of the *St. Nicholas Magazine* from 1884 to 1887, of *Wide Awake* from 1891 to 1893, and later was literary editor for the Lothrop Publishing Company of Boston.

BROTHERHOOD OF ANDREW AND PHILIP. See Andrew and Philip, Brotherhood of.

BROTHERHOOD OF SAINT ANDREW. See Saint Andrew, Brotherhood of.

BROWN, George Douglas, a Scottish author who died in London August 29, 1902, was best known to readers as "George Douglas," the pseudonym under which appeared his one book, the striking *House with the Green Shutters*. He was born in West Scotland in 1869, studied at Glasgow and Oxford, became a publisher's reader in London, and in addition to general newspaper work did sketches for the *Speaker* and reviews for the *Illustrated London News*. His *The House with the Green Shutters* (1901) became a "best-selling" book in England and America. But it was more than that. It was a work of distinct merit, which evoked for its author from certain critics the title of "the Scotch Balzac." In its cruel arraignment of the

Scot—the "unspeakable Scot" of Crosland—it raised a sharp note of opposition to the sublimated portrayals of the Kailyard School.

BROWN, JOHN APPLETON, an American landscape-painter, died January 18, 1902. He was born July 24, 1844, in Newburyport, Mass., studied art in Boston under B. C. Porter, and was a pupil of Emile Lambinet in Paris. His first work to attract attention was done while traveling in Switzerland. On his return to the United States he opened a studio in Boston, and later removed to New York. He had a talent for reproducing details with unusual accuracy, and under Lambinet learned to preserve this effect without sacrificing to composition. Some of his well-known pieces are: "View at Dives Calvados, France" (1875); "On the Merrimac"; "Storm at the Isles of Shoals"; "Glen Mile Brook, Byfield, Mass." (1881); and "Springtime" (1884). He was an associate of the National Academy.

BROWN UNIVERSITY, Providence, R. I., founded 1764. In 1902 the faculty numbered 84, against 87 in 1901, and the attendance was 940, an increase of 41 over the preceding year. The income for the year was $575,553, with gifts to the value of $395,306. The year was notable for building operations by which the university will secure the accommodations made necessary by its recent growth. Opposite the new library work was begun on a new clock tower, 100 feet in height, the gift of Paul Banjotti, of Turin. The Social and Religious Building given by John D. Rockefeller, will be used by the social, athletic, musical, literary, and religious organizations of the university. Other buildings already undertaken or provided for are a new dormitory, a building for civil and mechanical engineering, and the new swimming pools given by Colgate Hoyt. Brown steadily refuses to start professional schools, believing that its true function is that of an academic university. The courses have been generally stiffened.

BROWNE, JUNIUS HENRI, an American journalist and writer of war stories, died in New York City, April 2, 1902. Born at Seneca Falls, N. Y., in 1833, and educated in Cincinnati at St. Xavier College, he entered the field of journalism, and during the Civil War acted as war correspondent for the New York *Tribune*, in which capacity he attracted wide attention by his reportorial audacity and graphic descriptive powers. From May, 1863, to December, 1864, he was confined in several Confederate prisons, but finally escaped with a few companions, and traveled 400 miles on foot from Salisbury Prison to the Federal lines at Knoxville. Subsequently he contributed to various periodicals, and published *Four Years in Secessia* (1865), in which apear recitals of his prison experiences; *The Great Metropolis, a Mirror of New York;* and *Lights and Sensations in Europe.*

BRUNEI. See BORNEO.

BRUSSELS SUGAR CONFERENCE. See SUGAR INDUSTRY.

BRYAN, CHARLES PAGE, an American diplomat, was on September 26, 1902, transferred from his office as envoy extraordinary and minister plenipotentiary at Rio de Janeiro to assume similar duties in Switzerland. He was born in Chicago in 1856, and after studying at the University of Virginia and the Columbian Law College was admitted to the bar in 1878. In 1879 he removed to Colorado, where he was elected to the lower house of the legislature, served as colonel on the military staff of Governor Eaton, and for a time was connected editorially with the Denver *Inter-Ocean* and the *Colorado Mining Gazette.* Since 1883 he has been a resident of Illinois, where he was a member of the legislature for four terms, and an officer on the staffs of Governors Fifer, Oglesby, and Altgeld. In 1897 he was appointed minister to China by President McKinley, and in January, 1898, became minister to Brazil.

BRYANT, JOHN HOWARD, brother of William Cullen Bryant, died January 14, 1902, at Princeton, Ill. He was born July 22, 1807, in Cummington, Mass., and in 1831 removed to Jacksonville, Ill. In the following year, with his brother Cyrus, he went to Princeton, where he engaged in farming and also in building and contracting. He took a lively interest in politics, and was elected to several county offices and to the State legislature in 1842 and 1858. In 1847 he had edited the local Free Soil paper, and in 1852 ran for Congress unsuccessfully as a candidate of that party. He was a member of the convention at Pittsburg, Pa., that organized the Republican party (1856), and in 1860 was a member of the National Republican Convention. In 1862 he served as a collector of internal revenue. During the decade immediately preceding the Civil War his house was apparently a regular station for the underground railroad. In 1855 he published a volume of poems, which, of course, suffered from the inevitable comparison with his brother's works, but which is nevertheless highly creditable, and interesting as indicating the temperament of a poet who busied himself chiefly with the practical affairs of life.

BRYMNER, DOUGLAS, archivist of Canada, died at New Westminster, B. C., June 19, 1902. Born at Greenock, Scotland, July 3, 1823, he received a common school education in the place of his birth and began a business career, but went to

Canada in 1857 owing to ill-health, and undertook farming. After a time he entered the field of journalism and was connected editorially with the *Presbyterian*, the organ of the Presbyterian denomination in Canada, and with the Montreal *Daily Herald*. In 1872 he was appointed archivist of Canada, a public office newly instituted for the collection and preservation of Dominion historical records, which he held until his death. In 1892 he received the honorary degree of LL.D. from Queen's University, and was made a fellow of the Royal Society of Canada three years later.

BRYN MAWR COLLEGE, at Bryn Mawr, Pa., an undenominational woman's college of a high type, opened in 1885, had in 1901-02, a faculty of 43 and a student attendance of 437, of whom 67 were graduate students and 6 hearers. Its income for the year from all sources was $226,352. Within the year 1902 the money value of gifts received reached the amount of $572,149. A new lighting and heating plant has been installed at a cost of $153,000. A new dormitory and a new library building in process of erection, cost $400,000. The library was increased to about 39,000 volumes. The college lost a dormitory by fire.

BUBONIC PLAGUE. See PLAGUE and VITAL STATISTICS.

BUCK, ALFRED ELIAS, United States minister to Japan, died at Tokio, December 4, 1902. He was born at Foxcroft, Me., in 1832, and graduated at Waterville (now Colby) College, in 1859. Soon after the outbreak of the Civil War he raised a company of volunteers, and was made a captain in the Thirteenth Maine Regiment, and afterward, having raised the Ninety-first Colored Regiment, was appointed, in 1864, to the command of the Fifty-first Colored Infantry, with the rank of lieutenant-colonel. He was brevetted colonel for gallant services at Mobile, and made division inspector-general of western Louisiana in June, 1865. After the war he engaged in turpentine manufacture at Mobile, but was burned out in 1867. He was a delegate to the reconstruction convention of Alabama, was a presidential elector in 1868, and was elected to Congress in 1869. He was a delegate to five Republican conventions, was chairman of the Georgia central Republican committee after 1882, and was appointed minister to Japan in 1897.

BUCKWHEAT. Three-fourths of this crop in the United States is raised in New York and Pennsylvania. There was a slight falling off in 1902 in the yield per acre in both of these States, but in most of the other States a slight increase was noted. The average yield for the whole country was 18.1 bushels, as compared with the ten-year average of 17.2 bushels. The total crop of the year was 14,529,770 bushels, valued at $8,654,704, as compared with 15,125,939 bushels valued at $8,523,317 in 1901. The production of this grain in Ontario, Canada, was 1,971,930 bushels in 1902. The exports of buckwheat from the United States during the fiscal year ended June 30, 1902, amounted to 719,615 bushels, valued at $449,917. These exports were principally to the Netherlands and Germany.

BUILDING OPERATIONS in the United States during 1902 show a gain over those for preceding years. Reports received from twenty of the leading cities of the country for 1902 have been tabulated by *Construction News*, and show the following results:

CITY.	1901.		1902.		Per Cent.	
	No.	Cost.	No.	Cost.	Gain.	Loss.
New York (Boroughs of Manhattan and The Bronx)	4,107	$116,800,585	4,203	$95,969,693	.....	18
Chicago	6,035	34,911,775	6,074	48,070,390	35	.....
Philadelphia	12,840	29,519,710	11,359	28,703,195	.....	3
Brooklyn	5,014	19,547,885	4,986	20,611,253	5	.....
San Francisco	802	7,437,562	1,427	14,289,938	92	.....
St. Louis	3,722	13,207,991	4,502	12,853,386	.....	3
Washington	3,103	7,627,453	3,397	10,343,983	36	.....
Los Angeles	2,804	4,400,576	4,863	9,613,134	118	.....
Minneapolis	7,475	7,087,053	6,265	6,766,303	.....	5
Kansas City	3,103	6,222,355	2,943	6,617,161	6	.....
Cleveland	3,036	6,245,812	3,174	6,558,320	5	.....
Detroit	2,763	5,971,600	3,138	6,046,200	1	.....
Milwaukee	1,444	5,024,695	1,962	5,645,423	12	.....
Buffalo	1,058	4,338,771	2,109	5,422,998	25	.....
Cincinnati	3,146	3,505,450	2,807	4,668,805	33	.....
Denver	1,509	3,926,454	1,685	4,601,591	17	.....
St. Paul	1,374	4,261,400	1,269	3,337,604	.....	22
Indianapolis	2,522	3,744,969	2,764	2,989,752	.....	20
Allegheny	666	1,510,750	642	2,206,350	46	.....
Atlanta	2,696	2,824,150	2,816	1,835,983	.....	31
Total	69,119	$288,117,006	72,385	$297,151,462	.03	.....

BULGARIA, an autonomous Balkan principality under the suzerainty of Turkey. The capital is Sofia.

Area and Population.—The estimated area is 38,080 square miles. The population according to the census of 1900 was 3,744,283. Bulgars numbered 2,887,684, and Turks 530,275. Sofia had 67,920 inhabitants. The national religion is the Orthodox Greek, but it is not included in the Orthodox communion.

Government and Finance.—The executive authority is vested in a prince, who is assisted by a cabinet nominated by himself and responsible to the Sobranje. Upon this body, a single chamber, devolves the legislative power. The reigning prince in 1902 was Ferdinand I., youngest son of the late Prince Augustus of Saxe-Coburg and Gotha, who was elected by the national assembly July 7, 1887. The peace strength of the army in 1902 was placed at 2,500 officers and 40,555 men. The war strength is estimated at about 205,000. (See MANŒUVRES, MILITARY AND NAVAL.) The navy is inconsiderable.

The unit of value is the lev, worth one franc, or 19.3 cents. Revenue is derived chiefly from direct and indirect taxation and the largest expenditures are for service of the debt and for war. The estimated revenue and expenditure for 1901 were 95,286,900 leva and 95,222,535 leva respectively; for 1902, 95,955,400 and 98,898,337 respectively; for 1903, 98,017,900 and 97,682,871 respectively. For the last year the war estimates amounted to 23,301,362 leva. In 1899 steps were taken toward converting the entire national debt into a new 5 per cent. loan of 260,000,000 leva. On July 8, 1902, however, the Sobranje voted to issue a loan of 120,000,000 leva.

Industries, Commerce, etc.—The leading industries is agriculture, and wheat is the most important product and export. Other products are wine, silk, tobacco, and attar of roses. The values of imports and exports in leva have been as follows:

	1898.	1899.	1900.	1901.
Imports	72,730,250	60,178,079	46,342,100	70,044,073
Exports	66,537,007	53,467,099	53,982,629	82,769,759

The principal imports are textiles (about 27,500,000 leva in 1901), metal wares and machinery, leather goods, and furniture. The leading exports are grain (about 51,717,000 leva in 1901), live stock, and animal products, silk, and cocoons, and attar of roses. In 1901 British trade increased notably. The approximate values in leva of the imports from and the exports to countries of greatest trade importance were in 1901:

	Great Britain.	Turkey.	Austria-Hungary.	Germany.	Belgium.
Imports	13,917,000	10,062,000	17,228,000	9,828,000	2,392,000
Exports	15,875,000	24,429,000	7,255,000	8,799,000	10,970,000

In 1900 there were 909 miles of railway in operation and 130 under construction.

History.—The persistent hostility of the Sobranje to the plan of the Karaveloff ministry to secure a loan of 125,000,000 francs from a foreign corporation, which was to exercise some degree of supervision over the revenues, brought about the ministry's resignation on December 16, 1901. The resignation was not accepted by Prince Ferdinand, but after its measure was definitely rejected by the Sobranje on December 24 it again resigned on the 28th. On January 4, 1902, the Sobranje was dissolved, and on the next day a ministry was formed as follows: Premier and minister for foreign affairs, M. Daneff; interior and finance, M. Sarafoff; war, General Paprikoff; justice, M. Radeff; public instruction, M. Kantcheff; commerce and agriculture, M. Ludskanoff. This was a Zankoffist, or Russophil, ministry. It secured a majority at the legislative elections of March 3, which resulted as follows: 97 Zankoffists (ministerialists), 33 Stoiloffists, 17 Karaveloffists, 10 Agrarians, 9 Radoslaffists, 8 Socialists, 8 Stambuloffists, 7 independents. But on March 22, by order of Prince Ferdinand, the ministry was again reconstructed (from Zankoffist material) as follows: Premier and minister for foreign affairs, M. Daneff; interior, M. Ludskanoff; finance, M. Sarafoff; war, General Paprikoff; justice, M. Radeff; public instruction, M. Todoroff; commerce and agriculture, M. Abrasheff; public works, M. Constantinoff. Still again in 1902 there was a change of cabinet. In November the ministry resigned on account of personal differences among the members, and on the 17th was reconstructed under M. Daneff's premiership. The only changes made were the succession of M. Constantinoff by M. Popoff and the exchange of portfolios on the part of M. Radeff and M. Todoroff. On February 6, 1902, M. Kantcheff, the minister of public instruction was assassinated by one Karandjuloff, a discharged schoolmaster, who immediately afterwards committed suicide. It was not believed the crime was due to political motives.

Of most conspicuous interest in 1902 were the activity of the Macedonian Com-

mittee and the continued tendency of the government to draw towards Russia. The committee, which is formed for the purpose of freeing Macedonia from Turkish rule, is active in carrying on its propaganda both in the principality and beyond the border; and to its influence, in some measure at least, are attributed many of the Macedonian outbreaks. There is little doubt that the Bulgarian government is in sympathy with the aims if not the methods of the committee, but in 1902 affairs had reached so critical a point that, in the interest of international peace, and perhaps its own existence, it was obliged to restrain, ostensibly at least, the Macedonian agitators. Indeed, on April 15 the government informed the committee of its resolution to dissolve that body, but aside from the arrest of some of the leaders later in the year, practically nothing was done. A split occurred in the Macedonian Congress, which met at Sofia on August 10. One faction of the committee, in sympathy with the ill-reputed Boris Sarafoff, the former president, elected M. Stanicheff as president; the other faction chose as its president Colonel Zontcheff, an ex-officer, who, according to one authority, is "an enthusiast, touched with that zealous readiness for martyrdom, that fiery exaltation of will, which is so characteristic of the Slavonic genius." The Zontcheff faction appeared to be working for the annexation of Macedonia to Bulgaria, while the followers of Sarafoff frankly proclaimed their object to be Macedonian independence. Colonel Zontcheff was arrested, by order of the government, on September 2, escaped, was again arrested, and again escaped on October 8, when he went to Macedonia. M. Sarafoff was arrested on September 15. For a further account of the committee, the uprisings in Macedonia, and the relations of Bulgaria thereto, see TURKEY.

As to the relations of Bulgaria with Russia, it may be pointed out that during 1902, the government, supported by a majority in the Sobranje, was consistently Russophil. In June Prince Ferdinand visited the Czar, arriving at Peterhof on the 10th and leaving on the 13th. His reception was cordial and clearly indicated the amicable relations existing between the two governments. On September 29 the battle of Shipka Pass was celebrated in Bulgaria, and speeches lauding Russian arms were made by Prince Ferdinand and the visiting Russian Grand Duke Nicholas Nicholaivitch. At the end of 1902 it was more evident than ever that Russia is behind Bulgaria.

In October, 1902, Michael Stavreff, known as Holju, was condemned to death for the murder in July, 1895, of Stefan Stambuloff, the Bulgarian premier. Correspondence was then published by Holju's friends showing that he was only a tool in the hands of others and implicating, in the assassination of Beltcheff (minister of finance) and Vulkovitch (Bulgarian diplomatic representative at Constantinople), as well as in that of Stambuloff, many persons connected with the Bulgarian government of 1902, including the president of the Sobranje, the director of the national library, and M. Ludskanoff, the minister of the interior. The King of Roumania visited Prince Ferdinand in November, 1902.

BÜLOW, BERNARD, COUNT VON, chancellor of the German Empire, experienced in 1902 the difficulties of domestic and foreign statesmanship in a manner that severely tested his resources. In domestic affairs he was called upon to pilot the tariff bill through the Reichstag, a trying task when the number of German political parties, and especially the bitter conflict of Agrarians and Industrialists, are considered. By effecting the enactment of the tariff bill, which increases duties especially upon grain and meat and other food products, he stirred up the commercial hostility of Russia and Austria-Hungary, while exasperating the Socialists in restricting debate in the Reichstag. As the Emperor's mouthpiece in foreign policy, he was only partly successful. His references to the British army and to Mr. Chamberlain angered the English; but, on the other hand, he is credited with a share in the policy that brought about the joint blockade of the Venezuelan coast by British and German ships. He also had an important part in the renewal of the Triple Alliance in June. The chancellor was born May 3, 1849, and in 1875 began diplomatic service as secretary of the German embassy at Rome, occupying the same office afterward at St. Petersburg and Vienna. During the Russo-Turkish war of 1877 he was chargé d'affaires at Athens, and in 1878 served as a secretary at the Berlin Congress. After further diplomatic service, in Paris and St. Petersburg, he was appointed minister to Roumania in 1888 and to Italy in 1893. He was made foreign secretary in 1897, and succeeded to the chancellorship in October, 1900. Von Bülow has been described as a striking contrast to Bismarck in diplomatic manner and method. Polished and affable, he is apparently communicative, but in reality is secretive. He fully approves Bismarck's policy of friendship with Russia, and is in sympathy with the Industrialists rather than the Agrarians; but he has nevertheless advised and promoted measures that have gone far to alienate Russia commercially and to offend the Industrialists. With so masterful an emperor, his initiative is limited, and he has been an obedient opportunist; but to all outward appearance he is not more than fairly

launched upon his career as chancellor, and it remains to be seen how he will stand more prolonged tests of diplomacy.

BUOL-BERENBERG, Rudolf, Baron von, German statesman and politician, died in July, 1902. He was born May 24, 1842, in Zigenhausen, Baden, studied law at the universities of Freiberg, Munich, and Heidelberg, entered the Baden civil service, and after becoming a judge at Mannheim in 1870 was made a judge of the supreme court. In 1881 he was sent to the Baden Landtag, and three years later to the German Reichstag, where he allied himself with the Ultramontane or Centre party. In 1892 he was elected first vice-president of the Reichstag with Centre support, and in 1895 succeeded Levetzow as president when the latter resigned at the Reichstag's refusal to notice officially the eightieth birthday of Bismarck. He was the acknowledged leader of the Clerical party in Baden and presided over the Baden Catholic Diet that assembled in 1890 and later over the German Catholic Diet.

BURKE, Joseph, an American violinist, died in New York City, January 19, 1902. He was born in Galway, Ireland, in 1815, and at an early age developed a remarkable talent for music and acting. When eight years of age he began to tour Europe as an infant prodigy and met with great applause in many Shakespearean parts; and after coming to America in 1830 continued his acting for several seasons. He then studied law and was admitted to the bar in 1840, but never practised. His study of the violin had continued and in 1850-51 he accompanied Jenny Lind as soloist on the American tour of her concert company. He was well known in New York musical circles as an instructor and performer of high ability until 1880, when he retired to country life at Batavia, N. Y.

BURMA, a province of British India, lying to the north and east of the Bay of Bengal, is bounded on the north by Assam and on the east by China, French Indo China (for a comparatively short distance along the Mekong), and Siam. The estimated area of Upper Burma is 83,473 square miles and the population, according to the revised census of 1901, 3,849,833; Lower Burma, 87,957 square miles with 5,371,328 inhabitants; the Burmese Shan states, about 40,000 square miles, with 1,228,460 inhabitants; total, upwards of 211,000 square miles with 10,449,621 inhabitants in 1901. The people are mostly Buddhists. The chief city of Upper Burma is Mandelay (population 183,816), and of Lower Burma Rangoon (population 234,881). The province is administered under the Indian government by a lieutenant-governor; to this position Mr. Hugh Shakespear Barnes was appointed in September, 1902, to succeed Sir Frederick W. R. Fryer early in 1903. The money of account is the silver rupee, worth one-fifteenth of a British sovereign, or about 32.4 cents. In the fiscal year 1899 revenue and expenditure (in tens of rupees) amounted to Rx. 6,989,040 and Rx. 4,462,922 respectively; in 1900, Rx. 7,043,624 and Rx. 4,573,312 respectively. Imports and exports (exclusive of trade with other parts of India) were valued at Rx. 4,919,396 and Rx. 10,187,929 respectively in the fiscal year 1900, and Rx. 6,991,507 and Rx. 10,081,715 respectively in 1901. By far the largest export is rice, which in 1901 amounted to Rx. 7,924,278. These figures do not include the small overland trade with China. In 1899 there were 936 miles of railway in operation and since that time a considerable mileage has been completed.

BURNETT, Charles Henry, a specialist in ear diseases, died January 30, 1902, at Bryn Mawr, Pa. He was born in 1841, graduated at the University of Pennsylvania in 1866, and studied diseases of the eye and ear at Vienna. He was a member of the College of Physicians, and the American Aurological Association. He published *The Ear: Its Anatomy, Physiology and Diseases,* and was the editor of an encyclopædia of diseases of the ear, nose, and throat, which was completed in 1901.

BUTLER, Samuel, English author and composer, died in London, June 19, 1902, He was born in Langar, Nottinghamshire, December 4, 1835, and in 1858 graduated at St. John's College, Cambridge. After residing from 1860 to 1864 in the Canterbury Settlement, New Zealand, he devoted himself to painting, music, and literature. In several works he assailed the Darwinian theory, and published translations of the *Iliad* and *Odyssey,* and classical studies, among them an attempt to prove that the *Odyssey* was written by a woman. The most widely read of his writings are *Erehwon* (1872; the inverted word order of "Nowhere") and *Erehwon Revisited* (1891), descriptions of a new-found Utopia, written in the vein of Swift's *Gulliver's Travels,* and marked by vigorous and clever satire upon contemporary society, though with an over-fondness for the paradoxical. He took a keen interest in painting and architecture and exhibited several of his pictures at the Royal Academy. Chief among his musical productions is *Narcissus,* a cantata composed in the style of Handel and written in collaboration with Mr. H. F. Jones.

BUTLER, William Allen, a recognized authority on American admiralty law and the author of several well-known poems, died at Yonkers, N. Y., September 9, 1902. Born February 20, 1825, at Albany, N. Y., he graduated in 1843 at the University of the City of New York (now New York University), and after

European travel studied law, which he later successfully practised in New York. As senior member of the firm of Butler, Notman, Joline, and Mynderse, he became known among the eminent admiralty lawyers of the United States. In 1886 he was president of the American Bar Association. His satirical poem *Nothing to Wear* first published anonymously in *Harper's* for November, 1857, won an inter-continental popularity and evoked a host of bogus claimants. His *General Averages* was a clever skit on sharp mercantile practices. His further publications include *Martha Van Buren* (1862); *Mrs. Limber's Raffle*, prose fiction (1876); *Domesticus* (1886); and two volumes of collected *Poems* (1871, 1898).

CALIFORNIA, a Pacific coast State of the United States, has a land area of 155,980 square miles. The capital is Sacramento. California was admitted to the Union September 9, 1850, without ever having been an organized territory. The population in 1900 was 1,485,053, while in June, 1902, as estimated by the government actuary, it was 1,541,000. The populations of the four largest cities in 1900 were: San Francisco, 342,782; Los Angeles, 102,479; Oakland, 66,960; Sacramento, 29,282.

Finance.—The total receipts of the State treasury for the fiscal year ending July 1, 1902, amounted to $9,905,679.65 and the total expenditures $9,804,916.62. The balance and surplus on hand July 1, 1902, amounted to $5,093,239.44. The main items of revenue during the year and the amounts derived therefrom were: General property tax, $5,686,435.22; poll-tax, $430,186.17; school loans, $171,887.13; collateral inheritance tax, $287,053.49; secretary of state, fees, $143,607.80; insurance collections, $51,000; San Francisco harbor collections, $813,946.58; prisons, $300,730.88; reduction of bonds, $266,124.80; railway taxes, $884,062.42; United States government, $92,317.20; miscellaneous sources and transfers, $778,327.96. The total debt at the end of the year was $2,281,500. There was no change in the funded debt during the year, neither was any floating debt incurred. The entire funded debt of California is held in its own hands, and is therefore in the nature of a debt to itself. At the end of the year 1902, about a million dollars of school money, authorized to be invested in national, State, or county bonds, lay idle in the treasury. The interest on national bonds was so small and State and county bonds were so scarce that it was recommended by Governor Gage in his annual message that investments should be authorized in California municipal and school bonds. Owing to the fact that the State levy, applicable to the general State government, had been steadily reduced by the legislature for six years, the governor stated that either the levy must be increased again or the State would have to meet a deficiency. Complaint was made that under the general property tax, a great bulk of the personal property escaped taxation. The governor's message states that while from 1860 to 1870 the assessment of personal property nearly equaled that on real property, the personal assessment in 1902 was hardly 15 per cent. of the assessment on real estate. The governor considered that as soon as feasible the direct tax for the maintenance of the State government should be abolished as it was being abolished in New York, and an indirect tax substituted, leaving to the counties and other political and civil divisions the exclusive right to tax real and personal property.

Agriculture and Industries.—The crops for the season 1902 were large in quantity and excellent in quality. The production of wheat amounted to 22,374,201 bushels, being an average of 10.9 bushels per acre. The value of the barley crop was nearly twice that of any other State, 1,144,274 acres yielding a total of 29,751,124 bushels. The oat yield was 5,148,583 bushels. The fruit season of 1902 was unusually good. California is the first State in the production of grapes, statistical reports placing the 1902 yield at 98 per cent. of a full crop. Apples and pears were both considerably above the average. California is well supplied with live stock. According to the *Crop Reporter* the State had 1,449,249 cattle and 2,365,884 sheep on December 31, 1902. The year's wool-clip was estimated at 14,507,995 pounds.

The industries of California were particularly prosperous in 1902. San Francisco became the centre of a number of new undertakings of unusual importance. The Commercial Pacific Cable Company, financed by John W. Mackay, began the laying of the first American trans-Pacific cable—from San Francisco via Honolulu to Manila. On December 26 the cable was landed at Ohua (see PACIFIC CABLES). Since 1896 San Francisco's foreign shipping lines have increased in number from 3 to 13. During 1902 a number of the largest sized steamers were added to the various Pacific merchant fleets. Within the State a number of costly enterprises for the supply of fuel for power were started or completed in 1902. The Pacific slope has long suffered from lack of coal, being obliged to obtain its supply from the eastern States. But the water power and oil fields of the Sierras are now beginning to be extensively utilized. There was a remarkable increase in the consumption of oil in 1902, about 12,000,000 barrels being used. The use of oil as fuel for railway locomotives is rapidly increasing, the consumption for that purpose already being 7,000,000 barrels a year. Over 100 steamships were granted permits in 1902 to use oil-fuel. California oil refineries increased in number from 11 in 1901 to 33 in 1902. Abundant

oil has stimulated nearly all branches of mining. The director of the United States mint estimates the gold output in 1902 at nearly $17,000,000, or about $1,250,000 above the 1901 figures. According to his estimate, the silver production nearly doubled in 1902. Considerable prospecting and speculation were occasioned by reports of the discovery of rich deposits of nitre to the south and east of Death Valley in the southern part of the State. The Southern Pacific Railroad Company, the Southern Pacific Railroad Company of Arizona, and the Southern Pacific Railroad Company of New Mexico were consolidated in March, 1902. The aggregate capital of the consolidated companies was reported to be $159,445,000. The United Railway and Investment Company, of San Francisco, was incorporated in May under the laws of New Jersey. Its capital was increased from $2,500,000 to $25,000,000.

Labor Movements.—Throughout 1902 a general movement for unionizing the trades in San Francisco was kept up with considerable success, especially among the street railway employees. The latter met with determined opposition from the owners of the leading line. In the spring of the year, however, they perfected their plans so completely that they were able to call a strike on April 19, paralyzing the main lines of transit. A demand was made for a ten-hour day, a minimum rate of 25 cents an hour, and recognition of the union. The United Railroads Company, successors of the Market Street Railway, after a week's suspension of work made satisfactory concessions and traffic was resumed. The iron-workers of San Francisco struck for a nine-hour day on May 1, and on May 5 returned to work, having obtained slight concessions.

Conventions and Platforms.—The primary elections, under the new primary law, were held in the cities August 12, 1902. The Republican State convention met at Sacramento August 25-27 and adopted a platform indorsing the administration of President Roosevelt. Other policies advocated or endorsed were: the government policy in the Philippines; the civil service system; government ship-building in the navy yards; the construction of storage reservoirs for irrigation purposes; and the suppression of "trusts." In this latter connection the platform said: "We approve such legislation as will effectually restrain and prevent all such abuses, protect and promote competition, secure the rights of producers, laborers and all who are engaged in industry and commerce, and we approve and commend the efforts of President Roosevelt to enforce the laws against illegal combinations in restraint of trade, and pledge him our hearty support in all his efforts to protect the people from all oppressive combinations of capitalists." Among things condemned in the platform, Cuban reciprocity holds a prominent place. On this subject it says: "We declare our firm opposition to all reciprocity treaties inconsistent with protection to American labor and industry to which the Republican party stands pledged, and especially to any reciprocity arrangement with Cuba, or any other foreign country, as being destructive to the interests of the beet-sugar, raisin, citrous, and dried fruits industries of California, in which large amounts of capital have been invested."

The Democratic State convention met at Sacramento September 2-3, 1902. The platform adopted favored a revision of the tariff laws; the "securing to inhabitants of our insular possessions the same personal and property rights that are guaranteed to us;" the complete exclusion of Chinese; the speedy construction of an Isthmian canal; the construction of government vessels in government navy yards; direct legislation by initiative and referendum in State, county, and municipal affairs; and the just assessment and taxation of corporate property, including franchises. The platform denounced the existing protective tariff and condemned private monopoly in every form.

The Union Labor party decided not to put a full State ticket into the field, but named candidates for the State legislature and for Congress. The leading feature of the Union Labor platform was the declaration in favor of all nominations for elective offices being made by petition, political parties not to be recognized in law. The platform also advocated rigid enforcement of the eight-hour law and urged that all work for national, State, or city purposes be done by day's work and not by contract.

The Socialist convention met at San Francisco on September 9, 1902. The platform adopted advocated the socialistic principles as set forth at the Indianapolis convention of 1901; advocated the ownership by the people of the means by which wealth is produced and distributed, protested against monopolies and trusts, and approved the organization of workingmen for self-protection. E. F. Loud, Republican member of Congress from the Fifth district, who had over 6000 majority in 1900, was defeated by as large a total in 1902, owing chiefly to the hostility of trades unions to his views regarding working hours for postoffice employees.

The platform of the Prohibition party adopted in 1902 included planks favoring the initiative and referendum, the public ownership of public utilities, and the election of President and Vice-President by direct vote.

Elections.—At the regular quadrennial State election held November 6, 1902, a full

Republican State ticket was elected. For governor Pardue (Rep.) received 145,332 votes and Lane (Dem.) 143,782. The State legislature for 1903 comprises 90 Republicans, 22 Democrats, and 8 Labor Unionists.

Other Events.—On January 2, 1902, the steamship *Walla Walla*, 3069 tons, bound for Puget Sound from San Francisco, was run down and sunk by the French bark *Max* off Cape Mendocino, 39 lives being lost. There were several severe earthquake shocks in southern California July 27-31, especially in Santa Barbara County, where considerable damage was done to property. The town of Los Alamos was destroyed.

State Officers.—For 1902—Governor, Henry T. Gage; lieutenant-governor, Jacob H. Neff; secretary of state, Charles F. Curry; treasurer, Truman Reeves; comptroller, Edward P. Colgan; attorney-general, Tirey L. Ford; superintendent of education, Thomas J. Kirk; surveyor-general, M. J. Wright—all Republicans. For 1903—Governor, Dr. George C. Pardee, elected for 4 years, term ending January, 1907; lieutenant-governor, Alden Anderson; secretary of state, Charles F. Curry; treasurer, Truman Reeves; comptroller, Edward P. Colgan; attorney-general, U. S. Webb; superintendent of education, Thomas J. Kirk; surveyor-general, V. H. Woods—all Republicans. Supreme Court—Chief justice, W. H. Beatty; associate justices, R. C. Harrison, C. H. Garoutte, F. W. Henshaw, J. Temple, T. B. McFarland, and Walter Van Dyke—all Republicans except Temple and Van Dyke. For Congressional representatives see UNITED STATES (paragraph Congressional Representatives).

CALIFORNIA, UNIVERSITY OF, Berkeley, Cal., founded 1868. President, Benjamin Ide Wheeler. The students for the year ending June, 1902, numbered 3980, classified as follows: In Berkeley, graduate students, 230; undergraduate, 2248; total, 2470, of whom 1135 were women; in the university schools at San Francisco, 677, of whom 148 were women; at the Lick Observatory, 4 men; in short dairy course, 35 men and 2 women; in the summer session of 1901, 799, of whom 452 were women. Officers and teachers numbered 481. The enrollment at Berkeley in November, 1902, was 2846. In the increased attendance these well marked tendencies are evident: (1) the proportionate increase is greatest in the professional schools; (2) a relative decrease in the number of women; and (3) a widening of the student constituency. The number of entering students from without the State had risen to 14 per cent. in the fall of 1902. During 1902 a new department of political economy and finance was created under the headship of Professor Adolf C. Miller, formerly of the University of Chicago. The history department, from which the new department was separated, was reorganized under the headship of Professor H. Morse Stephens, formerly of Cornell University, who also is to direct the work in university extension. The department of physiology was reorganized under the directorship of Professor Jacques Loeb, formerly of the University of Chicago. A new department of irrigation was created under the direction of Professor Elwood Mead, formerly of the United States Department of Agriculture, while a beginning was made towards a new department of Slavic languages. The university has adopted a new, or rather reorganized the old, scheme of entrance and graduation requirements. Fifteen units of secondary work are now required for admission to each of the three colleges, 10 of which are common to all of the schools, as follows: English, 2; mathematics, 2; history, 1; Latin or modern languages, 4; physics, 1. The other 5 units may be taken from a large list of recognized preparatory subjects, but two must be in Greek for admission to the college of letters. One hundred and twenty points are required for graduation; and after the completion of at least 60 of these, which must include the 36 required points, there is given a certificate of admission into the advanced courses, many of which are of semi-professional nature. This plan recognizes a radical distinction between the work of the first two and of the last two years and also makes it possible for a student to graduate in three years. The preferred solution of the problem of the length of a college course is not a shorter course, but rather one emphasizing the changed character of the work after the sophomore year, which makes it possible for the fourth-year work to be distinctly professional. In this way the professional and the baccalaureate degree can be taken in six years. The gifts to the university for the past two years (the reports are biennial) reach $900,000, the largest amount ever received by the university in that length of time. The additional fund from State taxes made possible a number of improvements in the equipment and in the work of the institution. See PSYCHOLOGY, EXPERIMENTAL (paragraph University of California).

CAMBODIA, a protected state on the Gulf of Siam between Cochin-China and Siam and forming one of the divisions of the French colony of Indo-China, has an estimated area of 37,400 square miles and an estimated population of about 1,500,000. The capital is Pnom-Penh (population 50,000). The government, nominally under the control of a native king, is actually administered by the French resident, who

presides at the state council and supervises the French officials in whose hands practically the entire control of internal affairs is placed. The budget for 1901 balanced at 1,951,487 piastres. (The silver piastre is worth about the same as the Mexican dollar.) The chief products are rice, betel, tobacco, indigo, pepper, and spices. The foreign trade is carried on largely through the port of Saigon in Cochin-China (*q.v.*), with which the trade statistics are included. In the fall of 1902 the French government contracted for a submarine cable from Saigon to Pontianak, Borneo. See INDO-CHINA.

CAMBON, JULES MARTIN, French ambassador to the United States since 1897, was transferred to Spain in the autumn of 1902 and was succeeded by M. Jusserand (*q.v.*). During the negotiations which concluded the Spanish-American war, M. Cambon represented Spain in drafting and signing the peace protocol. He was born in Paris, April 5, 1845, and after receiving a university education studied law and was admitted to the bar. After meritorious service in the Franco-Prussian war, for which he was promoted captain, he entered the civil service in 1871 and in 1874 went to Algeria, becoming civil director-general. Returning to France in 1878, M. Cambon became secretary to the prefecture of police, Paris, holding that office until 1882. His subsequent positions until his promotion to the diplomatic service were: prefect of the department of the North, 1882-87; prefect of the department of the Rhone, 1887-91; and governor-general of Algeria, 1891-97. M. Cambon is a man of literary taste and acquirements.

CAMEROON, a German protectorate in West Africa lying on the Gulf of Guinea between French Congo and Nigeria and extending northward to Lake Tchad, has an estimated area of 191,130 square miles and an estimated population of 3,500,000. In 1901 the white inhabitants numbered only 548. The protectorate is administered by an imperial governor, assisted by a local council. A small army of about 900 natives officered by Germans is maintained to keep order. The seat of government is Buea and the chief town Duala (formerly Cameroon). Local revenue is derived mainly from import duties. For the fiscal year 1901 the actual revenue amounted to 1,431,760 marks. (The mark is worth 23.8 cents.) Estimated revenue and expenditure for the fiscal year 1903 balanced at 4,236,600 marks, of which the imperial contribution comprised 2,205,100 marks. The most important products are rubber, palm kernels, palm oil, ivory, and woods. The leading imports are textiles, alcoholic liquors, and ironware. Imports and exports in 1900 were valued at 14,245,014 marks and 5,886,458 marks respectively. In September, 1902, it was announced that the imperial chancellor had granted a concession for the construction of a railway from the coast to a point about 250 miles in the interior. According to a report published in July, 1902, German military operations in Adamawa had resulted in bringing the whole of that district, including the German territory bordering Lake Tchad, definitely under German rule.

CAMPANILE, at Venice. See ARCHITECTURE and ITALY (paragraph Fall of the Campanile).

CAMPBELL, Mrs. PATRICK, English actress. See DRAMA.

CAMPBELLITES, or CAMPBELLITE BAPTISTS, a term popularly applied to Disciples of Christ (*q.v.*).

CANADA, DOMINION OF, the largest British colony, comprising the northern part of North America, with the exception of Newfoundland and its dependency, Labrador. Ottawa, in the province of Ontario, is the capital.

Area and Population.—The total area, exclusive of the district of Franklin, which lies mostly within the Arctic circle, is estimated at 3,653,946 square miles, including 605,253 square miles of water surface. The population in 1901, according to the census of that year, was 5,371,051, as compared with 4,833,239 in 1891. The increase during the decade was 537,812, or nearly 11.13 per cent. The provinces of the Dominion are Ontario, Quebec, Nova Scotia, New Brunswick (the original members of the Confederation of 1867), Manitoba (admitted in 1870), British Columbia (admitted in 1871), and Prince Edward Island (admitted in 1873). Besides these there are the Yukon territory and the Northwest territories, divided into the districts of Keewatin, Assiniboia, Saskatchewan, Alberta, Athabasca, Mackenzie, Ungava, and Franklin. The district of Franklin has not yet been surveyed. The question of increase in the population of Canada during 1902 was more hopefully discussed than at any previous period. The reason was that the emigration of American farmers into Manitoba and the northwest was unusually large, and took place under conditions that promised a steady increase. During the fiscal year ending June 30, 1902, the immigration into northwest Canada from all sources was about 70,000, and of these 22,000 came from the United States, as compared with 17,987 in 1901, 15,500 in 1900, and 11,945 in 1899. The indications are, however, that since June 30, 1902, the influx of American settlers has been very much larger, and estimates for the fiscal

year 1903 vary from two to three times greater than the figures for 1902. See paragraph Religion and Education.

Government.—In 1867 the provinces of Canada were united by parliamentary act into a confederation called the Dominion of Canada, and provision was made for the admission of additional provinces as need should arise. The Dominion is virtually autonomous, with a governor-general representing the British crown; his powers, however, are little more than nominal, being really exercised by the federal prime minister. In the dominion the apportionment of federal and provincial powers respectively reverses that in the American union. In the latter, the sovereign States surrendered specific powers to the federal government, reserving to themselves the unspecified residuum; in the Dominion specific powers were given to the provinces by the imperial authority, reserving the balance to the federal government. The dominion constitution combines with the principle of federalism, borrowed from the United States, the principle of responsible or parliamentary government inherited from England. The virtual executive is the prime minister, who must always command a majority of the House of Commons, and whose advice may be temporarily rejected or reserved for imperial consideration, but is never ultimately disregarded. The legislative power is vested in the King, Senate, and House of Commons. The Senate consists of 81 members, nominated for life on the recommendation of the governor-general in council; members of the House of Commons are elected for five years. Representation is based approximately upon population, the unit of representation for the house being determined by the population of Quebec, whose representation is fixed at 65 members. Upon the basis of the 1901 census the members of the house will ultimately number 210; in 1902, however, there were 214 members as follows: Ontario, 92; Quebec, 65; Nova Scotia, 20; New Brunswick, 14; Manitoba, 7; British Columbia, 6; Prince Edward Island, 5; Northwest Territories, 4; Yukon, 1.

The provinces within their sphere are self-governing, according to the parliamentary system, and their executives, as well as the executive of the Northwest Territories are nominated by the governor-general in council.

The Liberal administration of 1902 was returned to power at the general elections of 1900. The ministry was as follows: Sir Wilfrid Laurier, premier and president of the council; R. W. Scott, secretary of state; Sir Richard J. Cartwright, minister of trade and commerce; Charles Fitzpatrick, minister of justice and attorney-general; J. R. F. Prefontaine, marine and fisheries; A. G. Blair, railways and canals; Sir Frederick W. Borden, militia and defense; W. S. Fielding, finance; Sir William Mulock, postmaster-general; S. A. Fisher, agriculture; James Sutherland, public works; Clifford Sifton, the interior; William Paterson, customs; M. C. Bernier, inland revenue; W. Templeman, minister without portfolio.

Finance.—The financial condition of the Dominion continues exceptionally prosperous. The revenue and expenditure for the fiscal year ending June 30, 1902, were $58,024,229 and $50,739,953 respectively, leaving a surplus of $7,284,276, one of the largest in the history of the country. The increase in revenue of $5,509,528 over that of the preceding year was due chiefly to customs duties, which amounted to $32,191,978 in 1902, as compared with $28,425,284 in 1901. There were also increases in receipts from excise, posts, public works and railways. The official returns for the half year ending December 30, 1902, show a still greater prosperity. The revenue for that period was $31,262,862, as compared with $27,683,855 for the corresponding period of 1901, an increase of $3,579,007. The revenue exceeded ordinary expenditure alone by $11,713,174 and total expenditure, which was $23,673,663, by $7,589,199. The increase of ordinary expenditure during the six months ending December 30, 1902, was only $467,457 in excess of the corresponding six months of 1901. The total gross debt of the Dominion in 1901 was $354,732,432, an increase of $8,525,453 over the previous year, and the total net debt was $268,480,003, an increase of $2,986,197 over the previous year. The total assets were $86,252,428. The rate of interest on the gross debt was 3.12 and the net rate was 2.60.

Agriculture.—During the fiscal year ending June 30, 1902, there was a large increase in the sales of land in Manitoba and the Northwest Territories for settlement. During the previous fiscal year there were 8162 homestead entries, representing 1,305,920 acres, as compared with 7424, representing 1,188,160 acres in 1900. The homestead entries and sales since June 30, 1901, very much surpass all preceding records. Of the homestead entries, 2351 were made by Canadians, chiefly from the province of Ontario, 2026 by Americans, 1056 by Austro-Hungarians, 659 by Englishmen, 255 by Germans, and 182 by Scotchmen. Crop statistics are given in the articles on the separate provinces; but some idea of Canada's agricultural importance may be gained from its domestic exports. During the fiscal year ending June 30, 1902, the exports of domestic agricultural products were valued at $37,152,688, of which wheat represented $18,688,092, hay $4,413,411, wheat flour $3,968,850, oats $2,052,559, fruits $1,922,304, seeds $1,309,322, and pease $1,582,764. The exports of animals and

their products amounted to $59,161,209; of this sum cattle represented $10,622,539, cheese $19,686,291, bacon $12,162,953, and butter $5,660,541.

Mineral Production.—The total value of minerals raised in 1901 was $69,497,031, as against $64,488,037 in 1900. The leading minerals produced were valued as follows for 1900 and 1901 respectively: Gold, $27,908,153 and $24,462,222; coal, $13,290,429 and $14,671,122; copper, $3,065,922 and $6,600,104; nickel, $3,327,707 and $4,594,523; silver, $2,740,362 and $2,993,668; lead, $2,760,521 and $2,199,784. The export of domestic mineral products in 1901 was valued at $40,367,683, as against $24,580,266 in 1900. The construction of large steel works at Sydney, Cape Breton, and at Sault Ste. Marie, Ontario, was well advanced at the end of 1902.

Fisheries.—The total value of the Dominion fisheries for the calendar year 1900 (the latest for which official statistics are available) was $21,557,639, being a decrease of $334,067 as compared with 1899. The value of salmon caught was $3,893,217, cod $3,614,775, lobsters $3,055,350, herring $1,853,237, and mackerel $1,549,448. In 1900 over 80,000 men were engaged in this industry, which represented a capital of $10,990,125. In 1900 bounties paid to the deep-sea fishermen of the maritime provinces amounted to $158,802. The seal catch in 1901 numbered 24,422, as compared with 35,523 in 1900.

Commerce.—Trade for the fiscal year ending June 30, 1902, was the best on record. The total aggregate trade was $423,910,444, of which the imports were $212,270,158 and the exports $211,640,286. The total trade was $42,393,208 in excess of the previous year. The imports were an increase of $21,854,633 over those of the preceding year and the exports were an increase of $15,152,654. Of the imports, $202,791,595 were entered for home consumption, as compared with $181,237,988 for the previous fiscal year. Of these the United States contributed $120,814,750 ($110,485,008 in 1901); Great Britain, $49,206,062 ($43,018,164 in 1901); Germany, $10,823,169 ($7,021,405 in 1901), and other countries, $21,947,614 ($20,713,411 in 1901). The most notable inferences from these figures are the continued increase of imports from the United States, and the checking of the decline in British imports that had marked the last decade of the nineteenth century. In spite of the preferential tariff of 33 per cent. in favor of Great Britain, the percentage of increase from 46.37 to 60.75 in American imports during the last decade bids fair to be fully maintained in the next. Of the exports $117,320,221 went to Great Britain ($105,328,956 in 1901); $71,197,684 to the United States ($72,382,230 in 1901); $3,298,912 to the West Indies ($2,905,937 in 1901); and $2,692,578 to Germany ($2,141,552 in 1901).

Communications.—In 1901 there were in operation 18,140 miles of railway (as against 17,657 in 1900), with a total paid-up capital of $1,042,785,539. Passengers carried in 1901 numbered 18,385,722 and the freightage amounted to 36,999,371 tons. The total earnings were $72,898,749 and the working expenses $50,368,726. The total net revenue of the Postoffice Department for the fiscal year ending June 30, 1902, excluding that from the Yukon and Atlin districts, was $3,888,126, an excess over that of the previous year of $466,933. The total expenditure, excluding that of the same districts, was $3,883,016. The surplus of revenue over expenditure was $5109, the first time a surplus in this department has been recorded. The postoffices numbered 9958. The tonnage of vessels of all kinds passing through the Canadian canals in 1901 was 5,778,496, and the tolls collected were $261,922, as compared with $276,658 for the previous year.

Currency and Banking.—The total paid-up capital of the banks of the Dominion at the end of the fiscal year 1901, was $67,095,718, as against $64,735,145 at the end of the previous year. The total assets were $531,829,324, as against $459,715,065 for 1900, and the total liabilities were $420,003,743, as against $356,394,095 for 1900. The notes in circulation were $50,601,205, as against $46,574,780 for 1900.

HISTORY.

Parliamentary Session.—The opening of Parliament by the governor-general, the Earl of Minto, took place on February 13, 1902. The strength of the Liberal majority in the House of Commons was increased slightly by bye-elections held during January. The speech from the throne expressed the regret of the Canadian people over the assassination of President McKinley, promised legislation for the punishment of anarchists and others who incite the commission of crimes commonly classed as anarchistic, referred to the assistance given Mr. William Marconi by the government in establishing stations for wireless telegraphy, and advocated additional commercial agencies and a line of steamers to South Africa. The debate on the address to the throne was vigorous and prolonged and brought out clearly the contrasted positions of the government and the opposition on current political questions. Moreover, the small group of irreconcilables, headed by Mr. Henri Bourassa, a French-Canadian member, raised the discussion of questions that could be easily asked but that by reason of their far-reaching imperialistic complications could not be easily answered. Such, for example, were the following matters contained in a

notification of resolutions made by Mr. Bourassa: The repeal of the Clayton-Bulwer treaty, the Alaskan boundary question, the Dominion's part in the South African war, and British Columbian legislation against the immigration of Chinese and Japanese. Most of these questions, as well as certain omissions from the governor-general's speech, were discussed in the debate on the address. In regard to questions relating to imperial matters, the attitude of the Parliament, as expressed by Sir Wilfrid Laurier, was that reasonable patience and delay are necessary. Mr. F. W. Borden, the leader of the Conservative opposition, reiterated his criticisms upon the existing tariff, which, he alleged, does not secure the home market to Canadians. The session, which was unusually brief, was prorogued on May 15. The principal measures passed were railway bills. One of these authorized the well-known contractors, Mackenzie and Mann, to connect the lines built by them in Ontario, Manitoba, and the Northwest, and to extend their system across the continent by the Pine River Pass to Fort Simpson on the Pacific coast. Another measure granted a charter for a new trans-Canadian railway, reaching to the Pacific coast. It may be noted here that in the latter part of 1902, the management of the Grand Trunk Railway announced its intention of building still another trans-continental line. The forced resignation on October 21, 1902, of Mr. J. I. Tarte, minister of public works in the Liberal cabinet, on the ground of his protectionist opinions, was a sensational episode of which the Conservative opposition made as much as possible.

Imperial Relations.—The Dominion was represented by Sir Wilfrid Laurier at the coronation of King Edward, August 9, 1902, and at the conference of colonial premiers, held in London from June 30 to August 11. At the conference the premier was accompanied by Sir William Mulock, postmaster-general, and Mr. W. S. Fielding, minister of finance. Sir Wilfrid Laurier was not so pronounced in his support of imperialism as had been expected. Fearing an unnecessary increase in the burdens of militarism, the premier held that Canada should make use of her importance as the senior self-governing colony, in seeking to postpone rather than to promote a joint organization of imperial and colonial forces for defense. In regard to preferential tariffs within the empire as a whole, the Canadian position, non-committal in some respects, virtually favored a dominion preference in the British market, but deprecated a radical disturbance of existing conditions. The British tariff on breadstuffs and grain, adopted as a war measure and going into effect on August 1, 1902, met with much disapproval in Canada, especially since the law did not provide for preferential treatment of colonial produce. It may be noted that protective tariff sentiment for Canada herself gained ground in 1902.

With regard to the South African war, the Canadian attitude remained firmly pro-British throughout 1902, and in April the House of Commons voted almost unanimously against a resolution advising a universal amnesty to the Boers, which was moved by Mr. John Charlton. Sir Wilfrid Laurier headed the opposition against it. The terms of peace were heartily approved. The return of the Canadian troops who had taken part in the war was the occasion of much enthusiasm. Probably a result of such feeling on the part of the Canadians was the announcement in the House of Commons on April 10 by the minister of defense that the government had decided to increase the militia so that Canada's forces would number 100,000 men.

The subject of new steamship lines as a means of trade expansion and of strengthening imperial relations received much attention in 1902. On August 28 it was officially announced that the Dominion government in cooperation with English capitalists had established a Canadian line to South Africa, with an annual government subsidy of $150,000 for five years. One of the requirements is that the ships fly the British flag. Of much greater importance is the project of a fast line to Europe under the management of the Canadian Pacific. Though definite official statements are lacking, Sir F. W. Borden, minister of defense, stated in an interview that the government had practically resolved upon such a service, which would receive annual subsidies from both Canada and Great Britain, the Canadian subsidy to be $750,000 and the British $375,000 a year. Canada's means of communication with the empire were increased in 1902 by the completion of the British Pacific cable (October 30), as well as by the accomplishment, at the Marconi station in Cape Breton, of wireless trans-Atlantic telegraphy. A Canadian company was formed to put the wireless system upon a commercial footing. See PACIFIC CABLE and WIRELESS TELEGRAPHY.

Religion and Education.—According to the census returns the numbers of the eighteen different religious denominations which composed the population of Canada in 1901 were as follows as compared with 1891: Adventists, 8064 (6354 in 1891); Anglicans, 680,346 (646,095); Baptists, 292,485 (257,449); Brethren, 8071 (11,637); Baptists (Free Will), 24,229 (45,116); Congregationalists, 28,283 (27,157); Disciples of Christ, 14,872 (12,763); Friends, 4087 (4650); Jews, 16,432 (6414); Lutherans, 92,394 (63,982); Methodists, 916,862 (847,765); Presbyterians, 842,301

(755,326); Protestants, 11,607 (12,253); Roman Catholics, 2,228,997 (1,992,017); Salvation Army, 10,307 (13,949); Tunkers, 1531 (1274); Unitarians, 1934 (1777); Universalists, 2589 (3186); unspecified, 44,186 (89,355); various other sects, 141,474 (33,776). The educational system of Canada is under provincial jurisdiction. The higher educational institutions include 17 universities, 20 colleges, 19 classical colleges, 9 women's colleges and academies, and 5 agricultural colleges.

Crime decreased in Canada during the year ending September 30, 1901, the number of indictable offenses being 128 less than during the previous year. The decrease in the number of criminals in proportion to the populations held good in Ontario, New Brunswick, Manitoba, Prince Edward Island, Yukon, and British Columbia, while in Quebec, Nova Scotia, and the Northwest Territories, there was a small increase. The decrease in the Yukon district from 35 to 14 per cent. is considered remarkable in view of the influx of miners and the immoral life usually associated with mining towns and camps. For an account of the religious sect in Assiniboia, whose fanaticism compelled government interference in December, 1902, see DOUKHOBORS.

Gaynor-Greene Extradition Case.—Considerable comment was called forth in 1902 by the Gaynor-Greene case, in which the extradition was sought of Colonel John F. Gaynor and Captain Benjamin D. Greene, American fugitives from justice, who were charged with complicity with Oberlin M. Carter, formerly captain of United States Engineers, in conspiring to defraud the United States government of funds amounting to more than $2,000,000 in connection with river and harbor improvements at Savannah, Ga., where Captain Carter was in charge. On May 14 an application for the arrest of Gaynor and Greene, made at Montreal by Mr. Marion Erwin, of Macon, Ga., who, as a special attorney-general had conducted the prosecution in the United States, in behalf of the American federal authorities, was granted by Police Magistrate Lafontaine, the extradition commissioner. The men were arrested and taken from Quebec to Montreal, whereupon Judge Andrews, of Quebec, issued a writ for their return to the latter city. This action was opposed by the counsel for the American authorities, who contended that on account of alleged political influence exerted in the prisoners' behalf there was more assurance of an impartial decision in Montreal than in Quebec. On July 4, however, Judge Caron, in Quebec, decided that the proceedings should be held in that city. Meanwhile Mr. Erwin had informed the State Department at Washington that the fugitives' counsel were connected by professional and social ties with the Canadian officials who had power to grant extradition. Attorney-General Knox authorized a request to the State Department that it bring the matter to the notice of the British Foreign Office, but Secretary Hay was disinclined to do so without fuller investigation, since Premier Parent of Quebec Province denied the truth of Mr. Erwin's charges. It was evident that the latter were based on the belief that large sums of money were being improperly used to influence Canadian officials to defeat the intent of the extradition act. In view of the technical objections made in behalf of the defendants, the Washington authorities gave notice that a new application for extradition would be made, framed precisely in accordance with the language of the treaty. When the case came up again at Quebec on August 13, Judge Caron decided that the warrant of arrest was illegal and released the prisoners on the ground that the offences charged were not within the terms of the extradition act. The decision excited much comment, even in Canada, and Attorney-General Knox said that no available means would be neglected to bring the fugitives to justice. The case illustrates the unsatisfactory character of the extradition treaty between Canada and the United States, and is believed to have afforded conclusive reasons either for a new treaty or a more liberal interpretation of the existing one. Another case of a similar kind was decided at Montreal on August 18, 1902, when the extradition of George Clark, of Lynn, Mass., was applied for on a charge of issuing checks without sufficient funds in the bank, but the defendant was released since the offence is not a felony in Canada.

Other Events.—Canada was comparatively free from industrial disturbances during 1902. There should be mentioned, however, the strike for higher wages of the Toronto street railway employees during the early part of the summer. On June 22 a riot occurred through the attempt of the company to run its cars with non-union men. A compromise was eventually arrived at, which was regarded as a virtual victory for the strikers. A terrible accident occurred on the Grand Trunk Railway at Wanstead, in the province of Ontario, on December 26, in which 28 passengers were killed and about 40 injured. See the articles on the several provinces.

CANALS. The canal work of 1902 was confined almost entirely to projects for future construction and these were notably fewer than for several years past. The Illinois and Mississippi Canal, begun a number of years ago, was the only canal for navigation purposes under construction in the United States. The improvement of the New York State canal system either by enlarging the Erie canal or by building a barge canal from Lake Erie to the Hudson River was agitated in various quarters

during the year, but this agitation resulted in no action which comes within the year's record. Isthmian canal questions were in the hands of the State Department and Congress and are reviewed in the article ISTHMIAN CANAL (*q.v.*). Of the projects for future canal construction in the United States and abroad the following deserve mention. Early in 1902 the Montreal, Ottawa and Georgian Bay Canal project was reported upon favorably by a committee of the Canadian Parliament. The estimated cost of the canal was set at $80,000,000 by this report and the time of completion was set at 1910. As described in the report submitted by the committee, the surface water in Georgian Bay is about 564 feet above the St. Lawrence at Montreal. It is proposed to raise the water in Lake Nipissing 65 feet above Georgian Bay, making a total fall of 630 feet from the summit level. The aggregate lift of all the locks will be about 650 feet. Three locks would be used to reach Lake Nipissing from the bay and the summit level will be 69 miles long through a chain of connecting lakes. From the eastern end of this level to the junction of the Mattawa with the Ottawa there will be a fall of 137 feet and five locks in 14½ miles. From the juncture named to Fort William the fall is 145 feet in 81 miles, requiring seven locks. From Fort William to the head of Lake des Chats, 56 miles, the fall is 115 feet and five locks are required. To Lake Deschenes, 47 miles, there is a fall of 55 feet, requiring two locks, and thence to the river below Ottawa there is a fall of 72 feet, requiring four locks. From Ottawa to Montreal the route is by the existing waterways. The total distance from Georgian Bay to Montreal by this route is 425 miles, of which four miles will be taken up by locks; 40 miles will be canal, 22 feet deep and 100 feet wide on the bottom; 74 miles will be in improved river channel, 300 feet wide on the bottom, and 307 miles will be in open lake and river suitable for 20 feet navigation without further improvement: The canal if constructed would bring Lake Huron and Georgian Bay ports 400 miles nearer Montreal than by the St. Lawrence River. In May, 1902, a bill was introduced into Congress to incorporate the Lake Erie and Ohio Ship Canal Company to build a canal at least 15 feet deep from Lake Erie to the Ohio River with a total fall of not over 600 feet. The canal would be 122 miles long and have 34 locks. A more important project of the year was the Taunton River and Boston Harbor Ship Canal, surveys for which were made by the board of harbor and land commissioners of Massachusetts. The total length of the canal as surveyed is 31.79 miles, of which 22.33 miles are straight line and 9.46 miles are curve. The canal was surveyed for a depth of 25 feet and a bottom width of 130 feet. There would be five locks. The estimated cost of the canal was set at $57,600,000.

In Europe the ship canal begun in 1890 from the Gulf of Dantzig to Königsberg was opened for traffic in 1902. This canal is 22 feet deep, 98 feet wide, and 18 miles long, and cost $3,500,000. Interest was also revived in the Mediterranean-Bay of Biscay Canal. This project was reported upon favorably by a committee of the French Chamber of Deputies. As proposed the canal would be 280 miles long, with 27 locks and a cross section capable of passing vessels of 3000 tons, and would cost $263,000,000. The committee estimated the annual income from this canal at $9,800,000. The French canal legislation of the year 1902 was, moreover, made notable by a vote of the lower house to spend $128,045,850 in deepening, broadening, and connecting various French waterways.

CANARIES, or CANARY ISLANDS, a group of islands off the northwest coast of Africa, constituting a province of Spain, have an area of 2808 square miles. The population, according to the census of December 31, 1900, was 358,564, of whom 166,505 were males and 192,059 females. The seat of government is Teneriffe and the most important town Las Palmas. The leading products and exports include potatoes, bananas, tomatoes, and almonds and other nuts. The annual export of nuts is valued at about $60,000.

CANCER. Active investigations of this great scourge are being conducted in most civilized countries, with the object of discovering its cause and cure. Statistics seem to prove that the disease is on the increase. In 1902 an epidemic of cancer was reported in the Faroe Islands, and Dr. Charcot, of Paris, and a party of scientists went thither to study it. In Germany, according to Wutzdorff, the number of cases has increased in Hamburg, Posen, and Bavaria, and there is an increase, though less marked, in Hanover, Saxony, Westphalia, Hesse, and East Prussia. Cancer now occurs at a younger age than formerly. No satisfactory explanation of this increase has been offered. Increases are also noted in England, the Netherlands, Norway, Switzerland, and the United States. In Russia a collective investigation of the cause of cancer is being carried on by the statistical method under government auspices, the object being to compile a map showing that the disease is virtually confined to certain districts, and if possible, to demonstrate the principles of its distribution. A committee for cancer research in Germany, headed by Dr. von Leyden, Dr. Kirchner, and Dr. Wutzdorff, is collecting statistics in that country. In England

the Duke of Bedford has promised an annual subscription of £1000 for the next three years to the cancer research fund. The search for the direct cause of cancer has been very keen, and several observers believe they have discovered a micro-organism that is responsible for the growth. Max Schüller, of Berlin, in *Médecine Moderne* (February 12, 1902) gives an analysis of his book upon the parasites of carcinoma and sarcoma. Careful experiments resulted in the discovery of parasites, hitherto unknown, which were not yeast, bacteria, or cocci. The second annual report of the Cancer Commission of the Harvard Medical School, published in the *Journal of Medical Research* for April, 1902, sums up as follows the claims of the adherents to the parasitic origin of cancer, which it was appointed to investigate: (1) that a proliferation of epithelial cells analogous to the lesions seen in cancerous tumors can be produced by certain well-known protozoa (nodules caused by coccidium oviforme); (2) that certain skin lesions characterized by epithelial-cell proliferation are due to the action of a so-called protozoon (molluscum contagiosum); (3) that blastomycetes are constantly present in human cancers and are the cause of the lesion; (4) that by inoculation with these blastomycetes true cancerous nodules can be produced; (5) that the endocellular bodies seen in the protoplasm of cancer cells have a definite morphology, are "parasites," and are the cause of cancer. The conclusions of the committee, reached after a year of research, are unfavorable to the foregoing propositions. The committee hold that the lesions produced by the micro-organism named are either inflammatory or granulation tissue, and not cancerous. Stecker has collected an immense number of statistics upon cancer in the domestic animals. He finds that skin cancer is not rare in horses or dogs. Urogenital cancer occurs in 56 per cent. of all cases in cattle, 23 per cent. of horses, and 8.7 per cent. of dogs. Cancer of the digestive tract occurs in 19.4 per cent. of all cases in cattle, 12.2 per cent. of horses, 14.2 per cent. of cats, and 4.1 per cent. of dogs. Cancer of the respiratory tract affects 23.3 per cent. of all cases in horses, 19 per cent. of cats, 10 per cent. of cattle, and 2 per cent. of dogs. For the cure of cancer H. A. Beaver, of England, used thyroid extract in a case that was too far advanced for operation and obtained an apparently complete cure. Other new remedies are discussed under CANCROIN, RÖNTGEN RAYS and PHOTOTHERAPY.

CANCROIN. Albert Adamkiewicz has isolated a serum from cancer juice which he calls cancroin. He reports several cases of cancer of the œsophagus, tongue, larynx, stomach, and eye cured by the injection of this substance into the blood. The substance is chemically like neurin (trimethylvinyl ammonium hydrate) in composition.

CANNON, JOSEPH G., congressman from Illinois, whose election as speaker of the House in the Fifty-eighth Congress was made practically certain by the withdrawal of all other candidates in his favor during the fall of 1902, was born at Guilford, N. C., March 7, 1836. Four years later he was taken by his parents to Parke County, Ind. In 1858 he began the practice of law in Douglas County, Ill. In 1861 he was elected district-attorney of his county and held office until 1868. In 1872 he was elected to Congress as a Republican, and has been returned by his district, with one exception—1890—every two years since that time. In the Forty-sixth Congress he was appointed by Speaker Randall a member of the committee on appropriations, with which he has since been so prominently identified. At the opening of the Fifty-first Congress he was one of the principal rivals of Thomas B. Reed for the speakership before the Republican Congressional caucus, and after the latter's election was made chairman of the appropriations committee, which was the first in history to run the appropriations of a single Congress up to the billion dollar mark. Defeated in the Democratic landslide of 1890, he was again re-elected by his old district in 1892, and when the Republicans again obtained control of the House in 1894 once more became chairman of the appropriations committee, a position he has continued to hold ever since. Charged at first by the Democrats with being extravagant in his recommendations, he has now come to be looked upon by both parties as a veritable "watch dog" of the country's finances. He himself explained his policy in a pithy reply to an importunate seeker for an appropriation in the following words: "You think because I am chairman of the committee on appropriations that it is my business to make appropriations. I tell you that it is rather my duty to prevent their being made."

CAPE COLONY, a British possession, officially known as Cape of Good Hope Colony, occupies the southernmost part of Africa. The capital is Cape Town.

Area and Population.—The area, including the various accessions that the colony has received, is estimated at 276,775 square miles, and the estimated population on December 31, 1901, was 2,433,000. The population of Cape Town in 1902 was 75,563. The Dutch preponderate in the western and the English in the eastern districts. In 1901 the schools numbered 2549, with 111,539 pupils. The state expenditure on

education in 1901 was £278,049. The leading religious denomination is the Dutch Reformed.

Government and Finance.—By the constitution the executive authority is vested in a governor and a council appointed by the crown. The administration is carried on, under the governor, by a ministry responsible to the colonial Parliament. This body consists of two houses, the legislative council of 23 members elected for seven years and the assembly of 95 members elected for five years. The use of either English or Dutch is allowed in the parliament. The governor in 1902 was Sir Walter F. Hely-Hutchinson, who succeeded Lord Alfred Milner in 1901. See paragraphs on History.

For fiscal years ending June 30 revenue and expenditure have been respectively as follows: 1899, £8,781,212 and £8,190,124; 1900, £6,565,752 and £7,773,230; 1901, £8,578,076 and £10,161,043. The ordinary revenue and expenditure in the fiscal year 1901 were £7,957,499 and £7,990,161 respectively; the extraordinary, £620,577 and £2,170,882 respectively. The largest sources of ordinary revenue in 1901 were railways, £3,688,028, and customs, £2,376,341; the largest ordinary expenditures were: Railways, £2,577,444; public debt, £1,429,231; justice and police, £884,400; militia and defense, £534,224. The public debt, which has been almost wholly contracted for the construction of public works, amounted on December 31, 1901, to £31,393,435.

Industries and Commerce.—The people are engaged principally in stock raising and agriculture and, at Kimberley, in diamond mining. For the year ending May 31, 1899, the leading products included the following: Corn, 2,857,809 bushels; wheat, 2,220,847; oats, 1,810,611; barley, 830,730; and Kafir corn, about 2,000,000; wine, 4,826,432 gallons; brandy, 1,107,344; wool, 35,179,900 pounds; mohair, 6,707,379; ostrich feathers, 278,167; butter, 2,869,719.

Total imports and exports are stated as follows:

	1897	1898	1899	1900	1901
Imports	£17,997,789	£16,682,438	£19,207,549	£19,678,336	£23,992,031
Exports	21,660,210	25,318,701	23,662,538	8,147,670	10,873,273

In 1901 imports of foodstuffs were valued at £7,185,129; textiles, £5,065,843; and building materials, £1,858,129. In the same year the exports of minerals and metals amounted to £6,943,828, and animal and vegetable products £3,337,086. The leading exports in the three years 1899, 1900, and 1901 respectively were valued as follows: Gold, £13,815,683, £336,795, and £1,226,000; diamonds, £4,135,583, £3,433,832, and £4,930,000; wool, £2,183,904, £837,809, and £1,489,000; ostrich feathers, £842,000, £876,801, and £839,000; copper ore, £446,985, £498,552, and £571,000; Angora hair, £779,899, £489,905, and £503,000; hides, £408,282, £346,800, and £451,000. The exports of gold mentioned above came from the Transvaal, but are not included in the Cape import figures. The imports of specie, included in the foregoing totals, amounted to £2,516,525 in 1900, and £2,575,871 in 1901. Great Britain sends over two-thirds of the imports and receives almost all of the exports.

Communications.—On January 1, 1902, there were 2161 miles of railway owned and operated by the state, 587 miles privately owned but worked by the state, and 235 miles privately owned and worked; total, 2983 miles. There were also 139 miles under construction for private companies. The line running north from Cape Town forms a part of the "Cape-to-Cairo" Railway (*q.v.*). Up to the beginning of 1902 the capital invested by the government in railways amounted to £22,469,389. In September, 1902, the premier stated that during the preceding ten years the railways of Cape Colony had yielded a surplus of over £10,000,000. The telegraph lines in 1901 aggregated 7470 miles, with 23,431 miles of wire. The postoffices at the end of 1900 numbered 961; the postal revenue in that year was £342,431, and expenditure £346,779.

History for 1902.—An account of the military operations in Cape Colony during 1902 may be found in the article TRANSVAAL. The most salient features of Cape politics during the year were the movement for a temporary suspension of the constitution and the conciliatory attitude of the Progressive premier, Sir J. Gordon Sprigg, toward the Africander Bond. It may be well to preface an account of affairs in 1902 with a résumé of the relations of the Cape political parties. After the Jameson Raid (at the end of December, 1895), there was a rather extensive political readjustment. The groups that finally formed were: The Progressives (the government party), led by Sir J. Gordon Sprigg, and representing the extension of British influence; the Opposition, consisting largely of members of the Africander Bond, a political body organized primarily in support of Dutch interests; and the Independents, led by Mr. J. Rose-Innes, a conservative party, but loyal to British supremacy. The Independent party virtually disappeared. In 1902 there were in the assembly 44 Progressives, 44 supporters of the Bond, and 7 of uncertain political attitude, while

in the legislative council the Bond had a majority of one. In June, 1900, Sir J. Gordon Sprigg became premier, succeeding Mr. W. P. Schreiner, and he still held the position at the end of 1902. On October 13, 1900, the Cape parliament was prorogued and, on account of the bitter feelings engendered by the Boer war, it was not called together again until August 20, 1902. Meanwhile the administration was carried on by the technically illegal means of ministerial warrants, and in some of the districts of the colony and for varying periods martial law prevailed.

Early in 1902 the Progressives (loyalists) openly expressed their fear that the opening of the legislature would mark a recrudescence of racial strife, and in February 42 members of the parliament signed a petition to the imperial authorities for the temporary suspension of the constitution, for an enactment by the imperial parliament of an indemnity bill for martial law procedure and expenditure, and for an alteration in the system of the Cape parliamentary representation. Although the Progressive ministry, with the exception of Dr. T. W. Smartt, commissioner of public works, frowned upon the movement, the agitation continued and in May the petition was presented to the governor, Sir Walter F. Hely-Hutchinson, who forwarded it to the imperial government. On May 29 Dr. Smartt resigned from the cabinet. The constitution, as a matter of fact, had been actually, though not formally suspended since July, 1901, when the parliamentary provisions for administration expired. Besides this the constitution had been violated in February, 1901, by the omission of the biennial registration of voters, and in October, 1901, by the failure of the governor to convoke the parliament. The object of the petitioners in asking for a formal suspension of the constitution was to avoid what seemed to be an inevitable continuation of racial antagonism in the parliament should that body convene. They held that if the parliament were allowed to meet the battle between the English and the Dutch would be simply transferred from the field to the legislative hall. A temporary substitution of the executive for the parliament, they argued, would obviate the necessity of any unreasonable concessions to the Dutch, would be the best means of pacification, thus making possible a wide measure of amnesty, and would hasten the movement for federation in South Africa. It was stated that many of the Dutch also approved temporary suspension; for, as they said, though desirous of supporting the government and though deprecating racial strife, they would feel obliged, in case such strife should appear,—and with the opening of parliament they admitted it would appear—to "stand with their own people." Before the middle of June, 1902, a popular petition for suspension had received 4500 signatures in Cape Town and over 20,000 in other parts of the colony, while at the end of the month the plan was opposed, it was said, by only four newspapers in South Africa. Lord Alfred Milner, high commissioner for South Africa, though careful not to commit himself officially on the subject, appeared to favor suspension, but Sir J. Gordon Sprigg, holding that the government was equal to any contingency, remained steadfastly in opposition. Commenting upon the controversy the London *Spectator* maintained that suspension should not be resorted to unless it were clearly in the interest of South Africa, and that this could not be determined until the experiment were made of submitting to the parliament measures necessary to secure British supremacy; while if such an experiment should fail the constitution should be suspended only in certain districts of the colony dangerously antagonistic to British interests. On July 2, 1902, Mr. Joseph Chamberlain, secretary of state for the colonies, advised the governor of the Cape that the imperial government was not disposed to acquiesce in the petition. He pointed out that the parliamentary signers of the petition comprised less than one-third of the assembly and less than one-half of the council, that the ministers confident in a parliamentary majority were opposed to the measure, and that above all the formal suspension of the constitution in a self-governing colony would be an action of extreme gravity and one for which no precedent exists. The colonial secretary urged that the act of indemnity and other legislation necessary for the welfare of the colony be passed by the Cape parliament with the tacit recognition that "charges and recriminations with regard to the past can serve no good purpose among those who must in the future live together as members of the same community with common interests in the peace and prosperity of South Africa."

The attitude of the loyalists was little modified by the imperial decision. The premier, Sir J. Gordon Sprigg, was virtually repudiated by the Progressives and his leadership of the party gave place to that of Dr. Leander S. Jameson and Dr. Smartt. While the Progressives were willing to support the premier in all matters of vital interest to the colony, they were not inclined to enter upon any compromise with the Africander Bond. Such a compromise, they held, the premier had made; he had engaged to resist imperial suspension in order to gain the Bond's support of the act of indemnity, which was necessary to prevent his impeachment for exercising the functions of government without parliamentary warrant.

The parliament was prorogued on October 13, 1900. It was not reconvened until August 20, 1902. Then the governor, Sir Walter F. Hely-Hutchinson, announced that martial law would be repealed upon the enactment of bills indemnifying the governor and all others concerned for official acts performed under martial law (including unauthorized expenditures), and for their failure to summon the parliament within the constitutionally prescribed period and to carry out the biennial registration of voters. Such bills were introduced, were subsequently passed, and on September 19, 1902, martial law was repealed throughout the colony.

Among other bills introduced at the opening of the parliament were the following: For prohibiting the immigration of Asiatics except British subjects; for segregating the natives; for prohibiting the sale of intoxicating liquors to the natives; for numerous public works and for the contribution of an additional £20,000 to the imperial navy.

During the debates on the indemnity bills the "political apostasy" of the premier became more apparent, at least to the Progressives. In June, 1902, he had denied any intrigue with the Bond leaders for parliamentary support, and on September 22 he declared in the assembly that he had not come to any understanding with them and that his course had been only what he deemed the best way to maintain imperial authority. Nevertheless, soon after the meeting of the parliament in August he had the support of the practically dominant Bond and the antagonism of his own party and of many loyal Dutch. He proposed to further racial reconciliation through the appointment of a new and, as alleged, superfluous commission to investigate the working of martial law—a commission that, according to the Progressives, would give the disaffected Dutch an opportunity for renewed rancorous discussion of their old grievances; while he reproved the loyal Dutch for protesting against their wrongs—such as boycotting—which still persisted, and refused to support their petition for new legislation dealing with sedition and restricting the sale of arms and ammunition. The relations of the parties with the government were peculiar; the Bond did not always stand with the ministry or the Progressives against it, and much friction was common. Several times the ministry was defeated, but did not resign. By the opposition of the Bond a government bill for reorganizing the colonial forces was defeated on November 3, 1902; the Progressives supported the government. It cannot be said that the position of Sir J. Gordon Sprigg in 1902 was taken with conscious disregard for the best interests of South Africa; and it is too early to say it was even unwise. Indeed, some English writers lauded it as both patriotic and far-seeing. But with the South African loyalists it was certainly unpopular.

Much relief was felt throughout the colony upon the conclusion of the Boer war and the signing of peace. On June 2, 1902, the premier stated that the extraordinary expenditure due to the war (and the plague) amounted to about £3,000,000, and that the colonial government had raised for the British forces 31,000 men, of whom 14,000 were doing permanent duty. On June 11, 1902, a proclamation was issued providing that all Cape rebels (excepting field-cornets and officials) who should surrender by July 10 or who had surrendered or been captured since April 12 should suffer no punishment beyond disfranchisement for life. Up to September 19, 1902, there had been convicted under this proclamation 3554 rebels, while 2434 were still awaiting trial.

The trial, for murder, arson, and other crimes, of the Boer Commandant Scheepers, who was captured on October 11, 1901, began at Graaf Reinet on the 18th of the following December. He was sentenced to death, and shot on January 18, 1902. On April 6 Commandant Kritzinger, who was also captured and tried, was acquitted and was consequently held as an ordinary prisoner of war. On April 30 Princess Catherine Radziwill was convicted at Cape Town of forging promissory notes in the name of Cecil Rhodes, and was sentenced to two years' detention in a house of correction.

At Cape Town on March 26, 1902, Cecil Rhodes died, and was buried on April 10 in the Matabele Matoppos in the land of his making.

CAPE-TO-CAIRO RAILWAY. This project of the late Cecil Rhodes, carried on by the British South Africa Company, progressed considerably in 1902. Aside from the extension of the main line north from Buluwayo, the chief features of the year were the projected line in the Congo Free State and the completion of the Salisbury-Buluwayo line. It was originally intended that the line from Buluwayo by way of Gwelo to Salisbury should form a part of the main line of the Cape-to-Cairo Railway, crossing the Zambesi near Kariba Gorge, but later explorations and an examination of the Wankie coal fields led to a change of plan, according to which the main line from Buluwayo is being built further west and will cross the Zambesi at Victoria Falls. Work on this line was under way in 1902 and it was expected that the coal fields would be reached early in 1903 and the Falls a year or more later. Here the river will be crossed by a steel bridge, one span of which will be 500 feet

long. The Falls are about 300 miles from Buluwayo, which is 1360 miles from Cape Town. Meanwhile the survey is being carried beyond the river.

It will be remembered that in November, 1899, Cecil Rhodes obtained the consent of the German government to build his railway through its East African territory. But it appears that the line will pass to the west instead of the east of Lake Tanganyika. On April 14, 1902, an agreement was signed at Brussels by the King of the Belgians and Mr. Robert Williams, a well-known African mining engineer, according to which the latter was granted rights of railway construction between the Rhodesian frontier and Lake Kasali. This is the most southerly point on the navigable waters of the Lualaba, one of the head reaches of the Congo, and is about 700 miles from Victoria Falls. The railway is to be constructed by an Anglo-Belgian company, of which M. Heyvaert, of the Brussels court of appeal, is president, and Mr. Williams vice-president. It is understood that Mr. Williams possesses written permission from Cecil Rhodes to connect at the frontier the Congo line with the Rhodesian line. The projected railway, as a part of the Cape-to-Cairo system, called forth unfavorable comment in Germany. If, however, the Germans ever see fit to build their proposed line from Dar-es-Salaam, on the coast, to Ujiji, on Lake Tanganyika, it is not unlikely that connection will be made with the Cape-to-Cairo Railway. Advantage will be taken of the river communication between Lake Kasali and Stanley Falls, on the Upper Congo, whence a railway is projected to Mahagi, on the Albert Nyanza, about 480 miles distant. The completion of these lines will effect through communication by rail and water from Cape Town to Cairo.

The Portuguese railway, running from Beira 222 miles to Umtali on the Mashonaland frontier and thence extended 158 miles to Salisbury, was connected with the Cape system on October 6, 1902, by the completion of the line between Salisbury and Buluwayo, 309 miles (by way of Gwelo). Thus there is uninterrupted rail communication, over the regular colonial gauge of 3 feet 6 inches, from Cape Town to Beira, a distance of 2049 miles. Of this mileage nearly 1500 miles were constructed through the instrumentality of the British South Africa Company. Communication with Beira will facilitate the northward progress of the Cape-to-Cairo line on account of the shorter freightage from the coast to the place of operation.

CAPE VERDE ISLANDS, fourteen in number, constitute a Portuguese dependency aggregating 1480 square miles in area and lying about 350 miles west of Cape Verde. According to the census of December 31, 1900, the population was 147,424, almost all of whom are negroes or colored. The colony is administered by a governor appointed by the crown and resident at Praia. For the fiscal year 1902 the estimated revenue and expenditure were 419,200 milreis and 362,328 milreis respectively; for 1903, 443,740 and 345,960 respectively. (The face value of the milreis is $1.08.) In 1900 the imports and exports were valued at 2,843,314 milreis and 351,498 milreis respectively.

CARDINALS. The sacred college, in the Roman Catholic Church, is composed of the advisers and electors of the Pope, to whom only they are second in rank. The subjoined list gives the names and dates of consecration of the members of the College of Cardials:

Cardinal Bishops: Antonio Agliardi (1896); Mario Mocenni (1893); Lucido Maria Parocchi (1877); Luigi Oreglia di Santo Stefano (1873); Serafino Vannutelli (1887); Vincenzo Vannutelli (1889).

Cardinal Priests: Bartolomeo Bacilieri (1901); Giulio Boschi (1901); Alfonso Capecelatro (1885); Gian-Battista Casali del Drago (1899); Salvatore Casañas y Pagés (1895); Francesco di Paola Casseta (1899); Pietro Geremia Michelangelo Celesia (1884); Pierre Hector Couillé (1897); Serafino Cretoni (1896); Angelo di Pietro (1893); Andrea Ferrari (1894); Domenico Ferrata (1896); Giuseppe Francica-Nava di Bontifé (1899); Casimir Gennari (1901); James Gibbons (1886); Pierre-Lambert Goossens (1889); Girolamo Gotti (1895); Antoine Joseph Gruscha (1891); José Maria Martin de Herrera y de la Iglesia (1897); Georges Kopp (1893); Guillaume Joseph Labouré (1897); Benoît-Marie Langénieux (1886); Victor-Lucien-Sulpice Lecot (1893); Michel Logue (1893); Achille Manara (1895); Sebastiano Martinelli (1901); Gaetano Aloisi-Masella (1887, died November 22, 1902); François Désiré Mathieu (1899); Patrick Francis Moran (1885); José Sebastião Netto (1884); Adolphe-Louis-Albert Perraud (1893); Gennaro Portanova (1899); Giuseppe Prisco (1896); Jean de Kozielsko-Pyzyna (1901); Mariano Rampolla del Tindaro (1887); Pietro Respighi (1899); François-Marie-Benjamin Richard (1889); Agostino Richelmy (1899); Ciriaco Maria Sancha y Hervás (1894); Giuseppe Sarto (1893); Francesco Satolli (1895); Léon de Skrbensky (1901); Domenico Svampa (1894); Claude Vaszary (1893); Herbert Vaughan (1893); Alessandro Sanminiatelli-Zabarella (1899).

Cardinal Deacons: Felice Cavagnis (1901); Francesco-Salesio Della Volpe (1899); Luigi Macchi (1889); Raffaelle Pierotti (1896); Francesco Segna (1894);

Andrea Steinhuber (1894); Luigi Tripepi (1901); José Calasanzio Vives y Tuto (1899). See ROMAN CATHOLIC CHURCH.

CARNEGIE INSTITUTION, Washington, D. C., founded in January, 1902, by Andrew Carnegie. President, Daniel C. Gilman. Mr. Carnegie gave ten millions of dollars to establish an institution of which the main purpose should be the advancement of knowledge and the encouragement of exceptional men likely to be successful in important investigations. The first *Year Book* of the institution was published in February, 1902. From this it appeared that there would be no available income until the first of August, 1902, and no appropriations were made by the board of trustees until their meeting in November, 1902. At that time the executive committee was authorized to expend during the year 1902-03 $200,000 in the encouragement of researches, $40,000 in publication, $50,000 in administrative and other various needs, and at the same time $100,000 was set aside for a reserve fund. The purchase of a site and the construction of buildings were considered by the board, and a conclusion was deferred for a year. Under this authority a large number of grants have been made. No complete list has been issued because many of the grants are on certain conditions, which may or may not be complied with by the persons to whom allowances are made, and also because in some cases the recipients do not wish their work to be prematurely announced. Among the grants in regard to which there is no uncertainty, there may be mentioned a liberal appropriation for the encouragement of the marine zoological station at Woods Hole, Mass., a foundation in which the leading zoologists of this country are profoundly interested. Two tables, and possibly more, have been engaged at the Marine Station of Dr. Dohrr at Naples, and Prof. E. B. Wilson of Columbia, a biologist of distinction, is the first to be selected as an occupant of one of these tables. A commission has been sent to Arizona to inquire into the conditions requisite for establishing a station in an arid region where observations and experiments may be made in respect to the conditions of vegetation in deserts. Inquiries have also been made with respect to the establishment of a zoological experimental station, on some inland site. To revive and continue the *Index Medicus*—suspended for lack of funds—a liberal appropriation has been made. In general, appropriations for experimental medicine and pathology are left to other organizations. Many of the geologists of the country have strongly urged the establishment of a geo-physical laboratory—in which many of the problems concerning the formation of the earth's crust and its movements may be investigated. This subject is likewise made the object of very special inquiry, preliminary to action by the board. Several important astronomical works have been undertaken, one of the most noteworthy being the collection and publication of the astronomical researches of George W. Hill, an American mathematician of high rank. Other astronomers have received personal grants. In physics, chemistry, psychology, geology, botany, and other branches of science, some grants have been made. In comparative philology, archæology, and the humanities, little has as yet been done. A beginning will soon be made in respect to American history. Measures have been initiated for the preparation of lists of scientific men in the United States, or for a report on the leading scientific institutions of all countries. Great importance is attached to the study of economic and social problems. The *Year Book* contains the names of a large number of expert advisers or counsellors, upon whose judgment the trustees have relied in determining whom or what to help. Among the names are many of the foremost investigators of this country. Hon. Henry Hitchcock, of St. Louis, a member of the board of trustees, died in 1902 and was succeeded by his brother, Hon. Ethan A. Hitchcock, secretary of the interior.

CAROLINE ISLANDS, a group of islands lying in the western Pacific to the north of New Guinea, together with the Pelew and Marianne (or Ladrone) islands, excepting Guam (*q.v.*), were ceded by Spain to Germany by a treaty of February, 1899, ratified by both governments in the following June. The consideration was the sum of 16,750,000 marks, or 25,000,000 pesetas, the value of 100 pesetas being fixed at 67 marks, so that the cost expressed in United States money was $3,986,000. The total area is estimated at 802 square miles (2076 square kilometres), of which the Carolines and Pelews comprise about 560 square miles and the Marianne Islands (without Guam) the remainder. The population, which is variously estimated, is probably not much above 50,000. Administratively the islands are divided into three groups (the eastern Carolines, the western Carolines and the Pelews, and the Marianne Islands) and form a part of the Kaiser Wilhelms Land protectorate. The islands demand an annual subsidy from the imperial government of about 350,000 marks, while their revenue is only about 33,000 marks. Industry and commerce are inconsiderable. In 1900 the imports to and the exports from the Carolines were valued at 459,224 marks and 263,481 marks, respectively. In 1902 the official report "confirmed in every particular the pessimistic views of those who had originally been opposed to the purchase of these islands."

CASATI, GAETANO, Italian soldier and explorer, died at Como, Lombardy, March 7, 1902. He was born at Monza in 1838, and at the age of twenty-one, after some study in the academy at Pavia, entered the Italian army, serving under Cialdini in 1866 and becoming a captain in 1867. In 1879 he resigned, and in the service of the *Societa d'Esplorazione Commerciale d'Africa* began his African explorations. He visited the Bahr-el-Ghazal region, and the districts of the Niam-Niam and Monbuttu; and in 1883, with the Russian explorer, Dr. Junker, aided Emin Pasha at Lado in repulsing the Mahdi. He was subsequently imprisoned by King Kabarega, owing to Stanley's severe attacks upon the king's subjects while attempting to rescue the besieged at Lado, and, though he managed to escape, had almost perished from exposure and starvation when finally rescued by Emin Pasha. After returning to Italy he published *Dieci Anni in Equatoria e Ritorno con Emin Pascha* (1891).

CATHERWOOD, MARY HARTWELL, an American novelist, died December 26, 1902, at Chicago, Ill. She was born December 16, 1847, at Luray, O., graduated at the Female College, Granville, O., in 1868, and settled in Newburg, N. Y. She married James S. Catherwood, of Hoopestown, Ill., in December, 1887. Her *Craque-o'-Doom* appeared in 1881, and was followed by a series of historical novels dealing with French Canadian life, among which the greatest success was attained by *The Romance of Dollard* (1889), *The Story of Tonty* (1890), *The Chase of Saint Castin and Other Stories of the French in the New World* (1894). *Old Kaskaskia* (1893) is a historical novel, in a similar manner, treating of Illinois. *The Spirit of an Illinois Town* (1897) deals with life in the west two generations ago. Her studies led her to write of the French occupation from 1673 to 1763, from a purely historical point of view, in the *Heroes of the Middle West* (1898). *The Days of Jeanne D'Arc* (1897) is also a careful historical study. *Lazarre* (1901) is based on the mystery shrouding the disappearance of Louis XVII. of France, and his alleged identity with Eleazar Williams, who passed the latter portion of his life as an Episcopal missionary in Wisconsin. Other well-known stories are: *Little Renault* (1897), *Spanish Peggy* (1899), *The Queen of the Swamp, and Other Plain Americans* (1899).

CATHOLIC CHURCH. See ROMAN CATHOLIC CHURCH.

CATHOLIC UNIVERSITY OF AMERICA, Washington, D. C., founded in 1887, is devoted exclusively to university training of college graduates. The chief developments of 1902 were the establishment of a college by the Dominican Fathers, adjoining the university but not affiliated with it, and the establishment of an Institute of Pedagogy in New York as a part of the university. This institute has about 150 students, all of whom are teachers in schools of New York or vicinity. The Apostolic Union has established an Apostolic College, which is about to erect its buildings on the university grounds. The university students in 1902 numbered 129, and the faculty 28. The university has an endowment, $950,842, with an income in 1902 of $155,975. Gifts to the value of $56,236 were received during the year. The library contains 36,772 volumes. In 1902 Mgr. D. J. O'Connell was chosen president to succeed in 1903 the Rt. Rev. T. J. Conaty, who was to assume the bishopric of Los Angeles.

CELEBES. See DUTCH EAST INDIES.

CEMENT, PORTLAND. The manufacture of Portland cement in the United States has undergone rapid development during the past few years, and the domestic supplies now nearly suffice for the entire consumption. The production in 1901 was 12,711,225 barrels, valued at $12,532,360; the imports were 922,426 barrels, and the exports 417,625 barrels. In 1891 the production was 454,813 barrels, the imports were 2,988,313 barrels, and there were no exports. Cement of high grade is now manufactured in this country much more cheaply than in Europe.

CENSUS. See UNITED STATES (paragraph Census Office).

CENTRAL AMERICA includes the five republics of Costa Rica, Guatemala, Honduras, Nicaragua, and Salvador, and the colony of British Honduras. These states are treated under their own titles. Figures based on recent estimates and censuses place the area at 184,238 square miles and the population at about 4,016,000.

On January 20, 1902, a treaty of peace and arbitration was signed at Corinto (Nicaragua) by representatives of the governments of Costa Rica, Honduras, Nicaragua, and Salvador. This action was brought about through the initiative of President Zelaya of Nicaragua. The treaty, which was subsequently ratified by the several governments, provides for the compulsory arbitration of all disputes that may arise among the signatory states—questions of boundary to be submitted to the arbitrament of a foreigner of American nationality, and all other questions to that of a permanent tribunal consisting of one representative from each state. The government of Guatemala was invited to adhere to the stipulations of the treaty, and this at first it appeared ready to do, but it was not represented in the arbitration tribunal when that body convened at San José (Costa Rica), on October 4, 1902. Other

provisions of the treaty looked toward the removal of any causes of friction between the republics. It may be remarked that, however good the intention of such treaties among Latin-American states, little confidence can be placed in their real effectiveness.

In the spring of 1902 a decree of the Nicaraguan government established free trade with Guatemala and Salvador, except in articles constituting government monopolies —alcoholic liquors, tobacco, and firearms, explosives, and other munitions of war. By the treaty of 1894 with Nicaragua, Honduras acquires equal commercial advantage with the other Central American republics. The Costa Rican government, which is inclined toward a high protective policy, did not accept reciprocity.

CENTRAL ASIA, RUSSIAN, comprises nine provinces included in the Steppes, Turkistan, and Trans-Caspia, with an aggregate area of 1,548,825 square miles and a population (1897) of 7,721,684; and the vassal states of Bokhara, area 92,000 square miles, population upward of 2,000,000; and Khiva, area 22,320 square miles, population 800,000. The principal town and the seat of government of the Turkistan provinces is Tashkent, with a population of 156,414. The capital of Bokhara is Bokhara, with 75,000 inhabitants; and of Khiva, Khiva, with 6000 inhabitants. Technically the provinces are administered like other provinces of the Russian empire, but the rule in a greater part of the region is still military and not civil. There is a governor-general for Turkistan, and an army of occupation of 46,000 men is maintained at his disposal. Bokhara and Khiva are ruled by native ameers, advised by Russian residents, and they enjoy autonomy as far as domestic affairs are concerned, only their foreign relations being under Russian control.

The products of the country are various and include wheat, maize, hemp, wool, silk, tobacco, wine, fruits, and cotton. The hay crop of the Steppes (1899) amounted to 2,540,493 tons and the wheat crop (1900) to 7,707,866 bushels. In Turkistan, Bokhara, and Khiva cotton planting is one of the most important industries and is being rapidly extended. With the present transportation facilities it is impossible to get the entire crop out of the country, but this difficulty will be overcome by the completion of the railways now actually under construction or projected. Ferghana, one of the Turkistan provinces, is the chief seat of cotton production, its estimated crop in 1900 being 144,448,000 pounds. The central Asian exports of cotton to Russia by way of the Caspian Sea alone amounted in the year 1900-01 to over 214,000,000 pounds.

The railroad system, of which over 1300 miles are in operation, extends from Krasnovodsk on the Caspian, through Merv and Bokhara to Tashkent, and thence south and west to Andijan in Ferghana. There is a branch line 195 miles in length from Merv southward to Kushka on the Afghan frontier, only seventy miles distant from Herat. Work was begun on a line to connect Tashkent with the Russian and European railway systems at Orenburg on the Ural late in 1901, and in the summer of 1902 over 650 miles of track were laid on this extension, which when completed will open up an extensive new wheat and cotton region to the Russian markets.

The completeness of Russian control in the vassal state of Bokhara was manifested during 1902 in an interesting episode. The reigning ameer, Sayid Abdul Ahad, who like his subjects is an ardent Mohammedan of the Sunni sect, prepared to go with a retinue of a thousand followers on a pilgrimage to Mecca. When he informed the Russian resident of his purpose, however, the official "advised" him very strongly not to undertake the journey. Although the reason given was the prevalence of various epidemics in the cities through which the ameer would have to pass, it was understood by every one, the ameer included, that the advice was practically a command, and the pilgrimage was reluctantly abandoned. It is very probable that the present ameer will be the last native ruler of Bokhara, though it is not likely that Russia intends to disturb the government before his death. Still, his own dissatisfaction with his position and the dissatisfaction of his subjects with his rule are said to have caused him seriously to contemplate giving up the cares of state and removing to Turkey, there to pass his remaining days with his wives and concubines, supported by funds derived from the sale of his family jewels.

A serious earthquake occurred in the latter part of December, 1902, in Ferghana, the shocks recurring at intervals for a week, and laying in ruins the entire city of Andijan and the surrounding region. The official Russian figures for the extent of the casualties placed the number of deaths at 4714 and the number of houses destroyed at 33,112. A far less serious earthquake also occurred in Ferghana on April 19. In Eastern Turkistan (nominally Chinese territory) severe shocks continued from August 22, 1902, till September 3.

CEREBRINE, known also as cerebrinum-Poehl or opocerebrinum-Poehl, is described as a cerebroside with the characteristics of a glycoside, having the formula $C_{24}H_{46}N_2O_{12}$. It is made in Dr. Poehl's laboratory. Dr. M. Lion, the Russian physician in charge of the Sumara Insane Asylum, has reported astonishing results with

this substance in twenty cases of essential epilepsy and in two cases of delirium tremens. Lion believes that the brain matter which is lacking in epilepsy is supplied by cerebrine, the epileptic symptoms disappearing and recovery naturally following. See EPILEPSY.

CEYLON, an island in the Indian Ocean south of British India, is a colony of Great Britain. It has a total area of 25,333 square miles and a population (1901) of 3,576,990, an increase of 567,529 since 1891. The largest racial elements in the population are the Singhalese (2,334,817) and the Tamils (952,237). There were 9,583 Europeans. Over half the inhabitants are Buddhists. The capital, Colombo, a port on the west coast, had a population of 158,093. The government, grant-in-aid, and private schools had in 1900 a total enrollment of 208,274. There is a royal college, a technical college, and high and industrial schools in addition to the well organized elementary system.

The administration of the colony is in the hands of a governor (Sir Joseph West Ridgeway, in 1902, since 1895) assisted by executive and legislative councils. The island is divided into nine provinces, presided over by government agents. The British troops in Ceylon number 2,982, and there is a colonial volunteer force of 2,112. The local monetary unit is the rupee, valued at 32.4 cents. The revenue in 1900 amounted to 27,325,930 rupees, and the expenditure 254,321,988 rupees. The principal sources of revenue are customs (in 1900, 7,228,293 rupees), licenses, stamp tax, government lands, and the salt monopoly. The public debt amounted (1900) to £3,419,-451, and the local silver debt to 3,239,585 rupees, both incurred entirely for the railway and other public works.

About one-fifth of the island is under cultivation, the acreage under the leading crops being (1900): Cocoanuts, 846,115; rice, 672,584; tea, 405,405; and grain, 109,095. The native industries include manufactures of gold, silver, ivory, and tortoise-shell, oil-refining, wood-carving, and pottery. The mining of precious stones and of plumbago, and the pearl fisheries in the gulf of Manaar are also of considerable importance. The imports and exports for 1900 amounted to 122,339,758 rupees and 108,926,-257 rupees respectively. The principal articles of export in 1900 were tea, valued at 53,735,257 rupees, cocoanut products, 16,438,308 rupees; and plumbago, 9,792,495 rupees. The trade is largely with Great Britain and India. There are 298 miles of railway in operation, belonging to the government, and extensions of 215 miles have been surveyed. The Boer prisoners who were confined in prison camps in Ceylon during the war in the Transvaal were returned to South Africa after the declaration of peace. During their detention in the island their health was generally good and there were few complaints of ill-treatment, of insufficient food, or of bad quarters. The Boers in Ceylon numbered 4,913. The commander of the troops in Ceylon at the end of 1902 was Major-General Sir Hector Archibald Macdonald.

CHAMBERLAIN, Sir NEVILLE BOWLES, a British field-marshal, died at Southampton, England, February 17, 1902. He was born in Brazil in 1820, and in 1837 entered the Indian service. Throughout the Afghan war of 1839-42 he served with distinction and received many wounds; was military secretary to the governor of Bombay in 1846-47; participated in the Punjab campaign of 1848-49; and from 1854 to 1857 was commandant of the Punjab Frontier Force. He was made adjutant-general of the Indian army in 1857, and took a prominent part in the siege and capture of Delhi until forced by wounds to retire from the field. His conduct during the Umbeyla campaign of 1863, which he directed, was likewise characterized by great personal gallantry. He was made commander-in-chief of the Madras army in 1876, serving in that capacity until 1881, was military member of the council of the governor-general of India, and headed a special mission to Shere Ali, the ameer of Cabul, which was stopped at Ali Masjid and could not prevent the war with Afghanistan that immediately followed. In 1900 he received the rank of field-marshal in recognition of his long and distinguished service.

CHARITY ORGANIZATION. In 1902 there were 145 societies for organizing charities in different cities of the United States. The plan and scope of the work is similar everywhere, viz., to organize and systematize charity work so as to prevent indiscriminate giving, and the duplication of really helpful work. The societies for organizing charities throughout the country were active during 1902 chiefly in combating tuberculosis, establishing free public baths in the crowded tenement districts, suppressing street begging, establishing juvenile courts, and demanding more efficient child-labor laws. In several States legislation was secured, establishing commissions to investigate the facts relating to tuberculosis. The objects of the societies everywhere are: (1) To teach that tuberculosis is a communicable, preventable, and curable disease; (2) to teach the means to prevent it; (3) to provide special hospitals, sanatoriums, etc., for consumptive adults and scrofulous and tuberculous children among the poor; (4) to aid in the adoption of measures to prevent the development of scrofulous and other forms of tuberculous diseases.

The Free Hospital for Consumptives in Philadelphia estimated that they had already lowered the death rate from consumption in Pennsylvania 33 1-3 per cent. With properly equipped sanatoriums sufficient to treat 5,000 patients yearly, the hospital reported that consumption can be completely eradicated in Pennsylvania in fifteen years. The cost was estimated at $1,000,000 for equipment and $400,000 yearly for maintenance and treatment, making a total cost of but $15,000,000. This would be a very small sum to pay for ridding the State of this terrible and costly disease.

The movement for free public baths was vigorously pushed. Twelve cities in the United States now have free public baths. The measures to suppress mendicancy, while producing most wholesome results in the cities where applied, for the most part merely drove the beggars to the towns and cities where no organization society exists, to feed on the misdirected charity of people who give without knowing for what. Experience emphasized the necessity of a more complete organization of charitable work on national lines, so that concerted action may be brought to bear on the tramp and mendicant problem. The cities can never be rid of vagabonds so long as the smaller towns and rural villages pay the transportation of "sturdy beggars" to the cities. More was accomplished than ever before, however, not merely to suppress but to cure permanently the evil of mendicancy.

New York City.—The Charity Organization Society of New York was founded June 30, 1882. The officers are Robert W. de Forest, president; Edward T. Devine, general secretary; J. Pierpont Morgan, treasurer. The year ending June 30, 1902, is reported as "the most fruitful, and, from the standpoint of preventive and constructive charity, the most satisfactory in its entire history." The principal objects achieved were the creation of the Tenement House Department for enforcing the new tenement-house law, for the enactment of which the society was largely responsible; the creation of a committee on the prevention of tuberculosis; the further development of the school in philanthropic work; and the work of the committee on mendicancy to suppress street begging. Industrial conditions were exceptionally favorable to constructive social work. The unemployed were so mainly from choice or from physical disability. During January, February, and March, 1902, the proportion of union laborers reported out of employment was 6.2 per cent. In no recent year had it fallen below 10 per cent. The small number of applications for assistance indicates that equally favorable conditions prevailed in the ranks of unorganized labor.

During the year ending June 30, 1902, there were 37,108 applications for relief to the Charity Organization Society of New York City. The society investigates every case coming to its attention and keeps a record of every applicant. It not only gives intelligent assistance, or directs the applicant where to go for the proper assistance, but it sifts out and prosecutes impostors in order to protect the charitable public. In emergency cases it is necessary to give relief immediately, leaving the investigation until afterwards. Nearly $31,500 was expended in this way during 1902.

The appointment of Mr. Homer Folks as commissioner of charities, brings the society into closer relations with the department of public charities, since Mr. Folks had been for years a member of the committee on dependent children, associate editor of *Charities*, and closely connected with charity organization work.

The work done to provide more and better free baths in the crowded districts was especially important. Contracts were let to supply nine of the public schools with shower baths. The experiment was looked upon doubtfully; but the records of the number of children using the baths show that they are greatly appreciated. The city now has two permanent baths. During 1902, contracts were let for three more permanent baths for Manhattan and two for Brooklyn at a total cost of $435,895 for construction. Another bath is being erected for the city by Mrs. Elizabeth M. Anderson, so the city will soon have eight permanent baths. The success of the two now operating makes it certain that this form of public expenditure accomplishes much good. In addition to these a great floating bath to cost $200,000, at the foot of East Twenty-third Street was provided for.

The fifth session of the summer school for charity workers was held June 16, to July 26, 1902, with forty members registered. Plans were made to extend the work to a two years' course in the future. Much has been accomplished by this summer school in educating workers who carry the methods of organization elsewhere.

Philadelphia.—The most important organization work of the year was the better systematization of charity work. There were 1,286 separate charities, religious and secular, in the city in 1902, of which 755 give material relief to needy Philadelphia families. Much work and assistance has been duplicated in the past. The society for organization of charity, accomplished more than ever before during 1902 to diminish this demoralizing waste of effort, and indiscriminate distribution of aid. The society dealt with 6,664 different families during the year. A new "Wayfarer's Lodge" was opened May 28, 1902, to furnish clean and comfortable lodgings to homeless men, for

an equivalent in work. The distribution of fuel was systematized. New legislation for the punishment of wife deserters was drafted, and a special fellowship for the study of homeless men was established in conjunction with the University of Pennsylvania.

Indianapolis.—The Charity Organization Society of Indianapolis was especially active in the suppression of street begging. To beggars is offered the opportunity of learning a trade by which to earn a living, or of free support in an institution without work, but not one accepted the proffered aid. Nearly all drink and live in the foulest homes. The great obstacles in the way of a complete reform are indiscriminate giving and the free mission and lodging houses which entertain tramps without an equivalent in work. The society dealt with 783 applications representing 2808 individuals. The Dime Savings and Loan Association collected $45,007.60 during the year. A court for the trial of juvenile offenders was established. The better housing of the poor was seriously agitated.

Hartford.—The Charity Organization Society received 2,709 applications during 1902. Hartford enjoys the evil repute of having worse housing conditions than any other city of its size. Owing to the watchfulness of the society, new tenements erected were made more sanitary.

Chicago.—The Bureau of Charities, at the invitation of the railroad companies, took charge of the investigation of applications for charitable concessions in railway fares. This arrangement prevents imposition by professional tramps and secures the benefits of low rates to those in real need of them. In the year ending May 20, 1902, 1,320 persons were sent away from Chicago to more favorable localities. It was found that 25 per cent. of the inmates of the hospital, the poorhouse, and the insane asylum were not legal residents of Cook County. More than $150,000 a year was being paid by Cook County taxpayers for the care of persons who should have been cared for elsewhere. A fund was set aside for the purpose of deporting non-resident dependents. The bureau advocates a law compelling such dependents to return to the communities on which they have a rightful claim for support. Police stations were closed to lodgers and a municipal lodging house was opened on December 22, 1901, at No. 12 South Jefferson Street, where all homeless men may obtain lodgings for a limited time for a reasonable compensation in labor. The experiment was so beneficial that it has been continued.

The National Conference of Charities and Correction.—This is composed of the State Boards of Public Charities of the several States, where they exist, of delegates appointed by the governors of other States, of charity organization societies and associated charities in the country, and of persons connected officially or unofficially with charity work. It has no formal constitution. Its tweny-ninth annual meeting was held in Detroit, Mich., May 28 to June 3, 1902. Its next session will be held in Atlanta, Ga., in May. Its officers are: President, Robert W. de Forest; secretary, Joseph P. Byers, Columbus, O.

Legislation.—The volume of charity legislation was very much less during 1902 than for the preceding year, because few State legislatures met in 1902.

Iowa.—The legislature appropriated $138,000 for completing and furnishing the Cherokee State Hospital and for the purchase of land. In addition to the regular support appropriations for the various charity institutions, the legislature made special appropriations amounting to $716,577.50. A bill creating a reformatory for men after the Elmira plan, failed to pass.

Kentucky.—An appropriation was made for improving the schools of reform at Lexington. The appointment of an inspector of labor at a salary of $1,200 a year and two assistants at $1,000 each, was authorized. These officials are to be under the supervision of the commissioners of agriculture, labor, and statistics. The same law provides a fine ranging from $25 to $250 for the employment of children under fourteen years of age in any factory, mine, or workshop. Three bills were attempted, but failed to pass: (1) To create a State Board of Charities. This was killed by the extravagance and political bearings of some of its provisions. (2) Providing for a central controlling board for the insane asylums in place of the local commissioners. (3) To establish an epileptic colony at the Central Asylum.

Maryland.—The Maryland legislature passed more charity legislation than has been the case in many years. The school attendance law (applying only to Baltimore and to Alleghany County) went into effect on September 1. It provides that all children between eight and twelve, physically and mentally fitted, must attend the public schools unless receiving adequate instruction elsewhere. Children from twelve to sixteen must also attend school unless legally employed at home or elsewhere. Such employment is forbidden if they cannot read and write, unless they attend school. The enforcement of the law is placed with twelve attendance officers. Penalties are provided for those employing children illegally, or preventing them from attending school. The child-labor law was amended by raising the legal working age from twelve to fourteen, except when a child is the only support of a widowed

mother, an invalid father, or is solely dependent on self for support. Special magistrates were created for the trial of juvenile cases. The Workman's Cooperative Insurance Act aims to protect employees in dangerous trades. A free employment bureau to bring employers and laborers together was created for Baltimore, and inspectors of sweat-shops and factories provided. A tuberculosis commission to be appointed for two years by the governor was authorized.

Massachusetts.—An appropriation of $130,000 was made for additions to the Massachusetts School for Feeble-Minded. A bill was passed transferring the licensing of boot-blacks and newsboys under fourteen from the board of aldermen to the school committee.

Montana.—Money was appropriated to build an addition to the Orphans' Home at Twin Bridges, and to double the size of the school for the blind and deaf at Boulder. These additions were completed in 1902.

New York.—The legislation recommended by Governor Odell, (1) placing State insane hospitals under the control and management of the State Commission in Lunacy, and (2) centralizing in a single superintendent the work of the boards of managers of the State charitable institutions, was vigorously opposed by the society and all those especially interested in the welfare of the inmates of these institutions. The first recommendation was enacted into law, but with the opposition of the State Board of Charities the latter was prevented from passage, and a measure creating a fiscal supervisor of charities, with a $6,000 salary, was substituted. The economy of this measure is seriously doubted by those in position to know. An important act secured by the New York Charity Organization Society was the establishment of a court for juvenile offenders in the city of New York. To the court of special sessions of the first division was given jurisdiction in all such cases, and on September 2, 1902, the court was opened in the Department of Public Charities. The vigorous attempts made by certain contractors and builders of Manhattan and Brooklyn, to secure the amendment of the tenement-house law amounting to a virtual repeal, were unsuccessful.

Ohio.—A law empowering cities and villages to erect and maintain public bathhouses, was enacted. A commission to investigate tuberculosis and the feasibility of its treatment in sanatoriums was authorized. The gross misrepresentation as to ages of children employed in factories led to the enactment of a law empowering the State factory inspectors to administer oaths and take affidavits in matters connected with the enforcement of the factory laws. A juvenile court law for Cleveland, modeled after the Illinois law, was passed.

Rhode Island.—A bill was enacted providing for a State sanatorium for consumptives. Some important legislation concerning the employment of children in factories was enacted. This law requires that children up to the age of thirteen years and up to fifteen years, unless the child is working or has completed eight years of the school course above the kindergarten, shall attend school throughout the year.

Virginia.—The legislature appropriated $180,000 for additions and improvements to the penitentiary. Liberal appropriations were made to the other State institutions for charity and correction.

Porto Rico.—The control of the Director of Charities, who succeeded the former Board of Charities, extended over four institutions; viz., the Insane Asylum with 200 inmates, Boys' Charity School with 300 inmates, Girls' Charity School with 200 inmates, and the leper colony with 25 inmates. The legislature in 1902 authorized an asylum for the blind to accommodate 150 inmates. The island is too much of a pauper itself to be able to do much in charity for its inhabitants, but the budget for charities was increased from $83,000 in 1900 to $140,000 for 1902-03.

CHAUTAUQUA SYSTEM OF EDUCATION, a plan of popular education organized in 1874. The sessions of the Chautauqua summer schools for the season of 1902 covered the period July 25 to August 15. There were 159 courses offered by 89 instructors. The total registration was 3,353, or 2,237 without duplicates, not including the clubs for boys and girls, which furnish systematic recreation and instruction for the younger residents of the Chautauqua colony. The Girls' Club registered 243, and the Boys' Club 346. An elementary vacation school, with 62 children in 1902, takes care of the children between the kindergarten age and the time when they can enter the clubs. The Delsarte department registered 108. In addition to the regular Chautauqua schools there is also held at Chautauqua a New York State Summer Institute open to teachers of the State. In 1902 13 instructors offered 26 courses. The registration was 537. Free nature-study courses were provided in cooperation with Cornell University and were largely attended. The library school, inaugurated in 1901, was continued with increased efficiency. During 1902 an arts and craft school was organized and met with great success.

CHEMISTRY. The presiding officers of the two greatest bodies of English speaking scientific societies in 1902 were both chemists. James Dewar, of the Royal Institution, was president of the British Association, and Ira Remsen, of Johns

Hopkins University, was president of the American Association. Dewar said that science is advancing in so broad a front by efforts of so great an army of workers that it would be idle to attempt within the limits of an address anything like a survey of chemistry alone. He therefore devoted his address to the results of his own splendid efforts to find absolute zero, in the course of which he described the properties of liquid hydrogen and helium more fully than has ever been done before. Of special interest was his announcement of a belief that the upper atmosphere is composed of very light or difficultly condensable constituents, such as hydrogen, helium, argon, krypton, xenon, etc., which exist only in minute quantities in the lower regions of the air. As tending to support this belief he called attention to the fact that Pickering's spectrum of a meteor shows lines corresponding to hydrogen and helium; and Stasano's collection of observations of the spectrum of the aurora gives many lines due to the more volatile gases of the atmosphere. Pickering's spectrum of a lightning flash gives nineteen lines, two of which correspond to nitrogen and oxygen, three to hydrogen, and eleven to argon, krypton, and xenon. Dewar also called attention to the fact that the Royal Institution, which was founded in 1799 by Count Rumford, an American citizen, and which had received considerable bequests from Thomas G. Hodgkins, also an American citizen, possessed an average annual income of only $6,000, and yet the returns to science by his predecessors, Young, Davy, Faraday, and Tyndall, demonstrated the wisdom of endowing education. The Carnegie Institution will dispose in a year of as much money as the members of the Royal Institution have expended in a century upon its purely scientific work.

Organizations.—The American Chemical Society, which has now a membership of 2,188 persons distributed among fourteen local sections (the Cornell section having been established in November, 1902), held two meetings during the year, the first in Pittsburg, Pa., contemporaneously with the American Association for the Advancement of Science under the presidency of Ira Remsen during June 30-July 1, when twenty-three papers were presented; the winter meeting was held in Washington during December 29, 1902-January 3, 1903, also at the same time as the American Association, when the titles of twenty-two papers were presented, and President Remsen delivered a retiring address on *The Life History of a Doctrine*, in which he discussed the development and present condition of the atomic theory, concluding with the statement that "the doctrine of atoms is still alive." The chemical section of the American Association met in Pittsburg under the presidency of Henry A. Weber, of the Ohio State University, who after delivering an address at the Washington meeting on *Incomplete Observations*, in which he indicated several cases where investigators had failed to carry out their researches to a perfect conclusion, leaving later chemists to bring the subject to a satisfactory end, retired from the chair, giving place to Charles Baskerville, of the University of North Carolina. The New York section of the Society of Chemical Industry held eight general meetings from October till June, at which thirty-four papers were read, and during the year 130 new members were added, making a total of 975 members in the United States. A general meeting of the entire society will be held in New York during 1903. On April 3, 1902, the American Electro-Chemical Society was formed in Philadelphia, and of the new organization Joseph W. Richards, of Lehigh University, was chosen president, and Charles J. Reed, 3313 North Sixteenth Street, Philadelphia, Pa., secretary.

Atomic Weights.—In 1900 an international committee on atomic weights was organized, composed of more than forty representatives from chemical and other societies. This committee delegated its duties to a smaller body, consisting of F. W. Clarke (United States), T. E. Thorpe (England), and Karl Seubert (Germany), who have recently submitted their report, giving a table of the atomic weights both on the oxygen standard (16), and the hydrogen standard (1). Their report further shows changes in antimony from 120 to 120.2; germanium from 72 to 72.5; hydrogen from 1.01 to 1.008; lanthanum from 138.9, the average of recent results by Jones 138.77, and by Brauner and Pavlicek 139.04; for palladium 106.5 has been provisionally adopted; radium appears for the first time with 225 as its atomic weight; selenium from 79.1 to 79.2; tin is advanced from 118.5 to 119; uranium, according to recent researches by Richards and Merigold, is made 238.5; and for zirconium 90.6 is accepted as the most probable value.

New Elements.—The discovery of new elements is made from time to time, but the corroboration of the announcement is often long delayed. Pribram reports the discovery of a new element in the mineral orthite from arendal, for which he proposes the name austrium, with the symbol At. It is said to show three characteristic lines in red, one each in blue and orange, and several in the ultra-violet portion of the spectra. The properties of its salts and studies as to its atomic weight seem to indicate that its place in the series of elements is between those of gallium and indium. In July, 1902, Marckwald announced before the Physical Society of Berlin that the so-called polonium, found in uranium ore, consists substantially of ordinary

bismuth and of a new element, in the proportion of a thousand to one. The new metal can be separated by electrolysis. The rays it emits are like those of radium, but differ in being almost completely absorbed by paper, as well as by glass. The chemical analysis of the new metal is difficult, as one ton of ore contains hardly one gram of the new element.

Physical Chemistry.—Lord Kelvin has recently reviewed the theoretical and experimental work that has been done on the problem of absolute molecular dimensions, and he concludes that the number of molecules in 1 cubic centimetre of gas is not less than 10^{20}, and is probably greater; hence the weight of one molecule of hydrogen is calculated to be 0.9×10^{-24} gram. The condition known as "the nascent state" which has long been accepted as an explanation of various facts in electrochemistry should, according to C. J. Reed, be put aside as no longer needed, for he contends that the result may be traced to hydrogen. He claims that freed hydrogen has no special mysterious power of reduction, but simply transmits the energy or electric charge that it has received from the electric circuit to another body; that is, it acts simply as an electric conductor and behaves not differently at a kathode than in any other part of the electrolyte. Frank W. Clarke announces as a new law in thermochemistry that in any class of compounds the heat of formation is proportional to the number of atomic linkings within the molecule, and seems to bear no relation to the masses of the atoms which are combined. The study of radio electricity has been zealously prosecuted and most successfully by E. Rutherford and F. Soddy, of Montreal, who devoted much attention to thorium, in which substance they find that the activity is confined to a very small fraction of the mass, which continuously changes. Ordinary inactive thorium is continually turning into the active form, and this again changes into a third form, which is also inactive. The substance thus keeps on losing energy by its radiation and will presumably in the course of millions of years become entirely inactive. J. J. Thomson in a recent paper called attention to the fact that the study of the Becquerel rays in uranium and thorium had led to the discovery of radium, polonium, and actinium. Concerning the first, he said radium is self-luminous, shining with a bluish light; it, like Röntgen rays, makes a sensitive screen phosphoresce; it shows the bones in the hand, and is so vigorous that it has produced sores on those who have incautiously carried it about their persons. The radium emits negatively electrified particles with a velocity in some cases approaching that of light. This continued emission of particles from the radium of course implies that the radium is losing mass and energy. The loss of mass is exceedingly small; from the results given by Curie for the amount of negative electricity emitted by the radium it follows that the loss of mass would only amount to about one-thousandth of a milligram in a million years for each square centimetre of surface. In consequence of the tremendous velocity with which the particles are projected, the amount of energy radiated is quite an appreciable amount, being sufficient, if converted into heat, to melt in a million years a layer of ice of the same area of the radium and more than a quarter of a mile thick. A practical application of the radiations from this rare element is thus described: a metallic screen held between the eye and a vial containing radium does not prevent the healthy eye from seeing. If the retina of a blind person is healthy, it will be affected by radium rays.

Inorganic Chemistry.—In addition to the remarkable work in connection with those elements that show radio activity already mentioned, much research has been made in the domain of inorganic chemistry. Jaubert has taken advantage of the property possessed by certain metals, such as sodium, potassium, and their alloys of absorbing oxygen when heated in a current of air and then yielding up the same when dissolved in cold water, and has prepared such compounds, to which he gives the name of oxyliths. These are sold in small pieces, and when placed in receivers of a convenient form and brought in contact with water furnish oxygen that is chemically pure, so that the chemist or physician is able now to readily produce the gas which formerly required for its transportation heavy cylinders. Urbain and Lacome have discovered a new volatile salt of glucinum which, owing to its peculiar physical properties, seems to confirm the belief that its base, i.e., glucinum, is diatomic. Among its chemical properties is the fact that it is a basic salt which is formed in a solution that is extremely acid. Another salt that has created considerable interest is the lithium silicide which has been obtained as bright indigo blue crystals that are very hydroscopic and are violently decomposed by water, acids, and the halogens. Moissan continued his interesting work with the electric furnace, and during 1902 obtained metallic tantalum by reducing tantalic acid with powdered carbon after heating his mixture for ten minutes with a current of 800 volts and 60 amperes. His reactions with the metal seem to class it as a metalloid rather than a metal. Orloff published some experiments made by him that served to indicate a belief in the existence of a peculiar modification of sulphur which has a blue or (when mixed with the yellow form) green color, and which is very unstable. The indications are that the molecule is analogous to that of ozone and has the formula

S_2. As the result of the researches of M. Guichard there is reason to believe that the five blue oxides of molybdenum are simply mixtures of the trioxide. Camille Matignon has studied the salts of certain rare elements and has described his method of preparing and the properties of the anhydrous chlorides of samarium, yttrium, and ytterbium. The rare earths of the yttrium group have been studied spectroscopically by L. M. Dennis and Benton Dales, of Cornell, who found in the mineral sipylite from Virginia and Texas lines that correspond to yttrium, ytterbium, erbium, thulium, holmium, samarium, dysprosium, and possibly didymium. According to K. Feist, the crystalline constituent of Kermes mineral hitherto regarded as antimony oxide is shown to be sodium pyroantimonate. W. C. Heraeus finds the melting point of manganese to be 1245° C.

Organic Chemistry.—Nearly 900 pages in the *Journal* of the London Chemical Society are devoted to abstracts of papers on organic chemistry published during 1902, and while the larger proportion are from German sources, still much good work is now being done in France and in the United States. Marcel Delépine described briefly before the French Academy his methods of preparing iminodithiocarbonic esters together with their properties. Carl Graebe discussed in the *Berichte* the various representations of the space formula of benzine, and suggests a new figure prepared by joining up by two edges three pairs of tetrahedrons joined by two apices. Theodor Posner continued his elaborate studies on the disulphones, and published the eighth section specially devoted to the mercaptoles and sulphones from diketones, and in the ninth paper he considers the derivation of unsaturated ketones containing sulphur. A new liquid hydrocarbon which boils at 142-145° C., and named salvene, has been obtained from the German oil of sage by H. Seyler. Moissan announces a new synthesis of formic acid by passing a rapid stream of pure dry carbon dioxide over crystalline potassium hydride which has been volatilized along a glass tube. The indefatigable Arthur Hantzsch continues to add to his many contributions, and during the year published *Quinonoid Diazo-compounds and the so-called Triazolens; Decomposition of Diazonium Salts by the Aid of Alcohol; Structurally Isomeric Cyanurates;* and *Desmotropism of Trimethylethylene Nitrosite,* as well as *Azotates of the Fatty Series,* in the preparation of the last-named of which he was aided by M. Lehman. P. Sabatier and J. B. Senderens announced before the French Academy a new synthesis of methane by passing carbon dioxide and hydrogen over reduced nickel at a temperature of about 300° C. M. I. Konowaloff, a Russian chemist, published the methods used by him in accomplishing the synthesis of tertiary alcohols by means of organo-magnesium compounds. Saponarin is the name given by G. Barger to a new glucoside which he obtained from saponaria. C. Renz describes a series of compounds of thallic chloride with organic bases which he prepared. The production of acetone from crystallized egg-albumin by treatment with hydrogen peroxide and copper sulphate is announced by Arnold Orgler. An elaborate discussion on the *Constitution of the Oxazine and Thiazine Coloring Matters and their Relationship to the Azonium Compounds* was published by F. Kehrmann in the *Annalen.* Under the name of iminoxanthiodes L. Tschugaeff describes a new class of colored organic compounds most of which are red. Manneotetrose and mannitrose are the names of two new sugars found by C. Tauret in manna, the exudation of *fraxinus ornus.* C. F. Mabery, of Cleveland, added much to our knowledge of the composition of petroleum in a paper in the *American Chemical Journal,* which had as its subtitle "Hydrocarbons in Pennsylvania with Boiling Point above 216° C."

Industrial Chemistry.—It has been known for some years that it was possible to manufacture sulphuric acid from the gases obtained by burning pyrites, but it was not until the publication early in the year of a description of the method used that the details became known. The fact that the gases mentioned, when purified and carried to the laboratory, and then passed over a contact-mass containing finely divided platinum, the sulphur dioxide became completely oxidized to the trioxide or to sulphuric acid, and if water was present, appears to have inspired the improved process. At first all attempts to accomplish a similar result on a commercial scale failed, as the contact-mass quickly became inert. Small quantities of arsenic present proved to be the cause, and their removal by washing solved the difficulty, and the process became a success. The extraction of metallic calcium from lime and other salts by electrolysis has been successfully accomplished by Borches. The metal which now has a value of $2,000 a pound will be reduced in cost to less than 50 cents a pound. The special value of the new metal will be in chemical research and in the production of new organic compounds, for which purposes there has long been a demand for a reducing or deoxidizing agent stronger than aluminum, magnesium, or zinc, and weaker than sodium and potassium. It is also likely to be of great importance in the iron industry. At present aluminum is used to free iron from sulphur and phosphorus, the result being an iron containing aluminum, which though less injurious than sulphur or phosphorus, is still undesirable. If calcium, as there is reason to believe, dissolves but sparingly in iron without injuring its strength and

tenacity, the iron industry will create an extensive demand for the new metal. Metallic strontium, it is said, has also been obtained by a similar method. A new alloy of unknown composition is announced by M. P. Germain. Its density (20.5) is superior to bronze, and a little above that of gold, and it is less liable to fracture than steel, but is tempered exactly in the same manner as steel. The color is yellow, it is inoxidizable, and resists acids. It is also very elastic and is welded without being heated, by hammering. Its electric conductibility is 98. It has been found that when aluminum is alloyed with from 2 to 10 per cent. of magnesium, the metal obtained is hardly to be distinguished from aluminum; but when the alloy is passed several times through a flatting mill, heated each time toward 400-500° C., its principles are modified. The alloy cuts and files well, as though it were charged with magnesium, while preserving the ductility and malleability of pure aluminum. Edmund O'Neill finds that he can produce potassium cyanide from the atmosphere. He uses simple apparatus, and by subjecting the vapor from petroleum or coal to the influence of an electric ore he obtains hydrocyanic acid, which, when heated with potash, rapidly yields potassium cyanide. The cheapness of the materials and the simplicity of the apparatus combined with the saving in energy possible in this operation are factors that give the new process a tremendous advantage over all others now in use, and in consequence the new method will cause a great reduction in the cost of extracting gold by the cyanide process and in similar metallurgical operations. A process for using peat fibre has been discovered in Germany. The vegetable fibres are first isolated, and then treated with acids and alkalis, the result being a peat wool consisting of nearly pure cellulose, which is soft, elastic, and capable of being spun in the same way as sheep's wool. A new method of storing acetylene gas for lighting purposes has been introduced in France, which is absolutely free from danger of explosion. It is based on the solubility of acetylene in acetone, and makes it possible to obtain an accumulation of the gas in portable receivers at much less pressure than liquefaction necessitates, thus diminishing the dangers due to the liquefied gas whose pressure at 37° C. is 68 atmospheres. A new high explosive named marsurite has been invented, which possesses, it is claimed, special merit from the fact that it is insensitive to shock, concussion, heat, or cold, and can be exploded only by means of an electric fuse.

Physiological Chemistry.—The theory that nervous action could be explained by electrochemical laws has received more favorable commendation from physiologists than from electricians. In time, physiologists will discover the fundamental laws—perhaps very simple in character, but no doubt very complex in superposition—which underlie nerve action, and the objective side of consciousness. There can be no doubt that electricity takes a share in this action, because all the phenomena of life are phenomena of differentiated liquids separated by thin septa, and it would be practically impossible to assemble such a mechanism without originating electric and electrochemical actions. The recent studies of T. B. Aldrich seem to show that adrenalin is the active principle of the suprarenal gland. W. Jones and G. H. Whipple have shown that the nucleoproteid of the suprarenal is a thymonucleoproteid and probably not a nucleohistone. W. D. Halliburton in commenting on the recent rapid growth and great importance of chemical physiology cites among the more valuable of recent investigations the work of Loeb on the value of ions in fertilization, the knowledge gained of the constitution of the proteid molecule; the discoveries of Pawlow on the various digestive secretions; and the theories of Ehrlich and his colleagues on the subject of immunity towards toxines. At the close of the year the announcement was made that the well-known antiseptic formalin had been successfully used as a cure for sepsis or blood poisoning. The so-called "holy shroud" or traditional winding sheet of Christ preserved in Turin, Italy, since 1353, was carefully examined by Professors Delage, Vignon, and Colson, who reported to the Academy of Sciences in Paris, their results essentially as follows: The winding sheet has on it certain markings printed in a brown color which when photographed give a white imprint, as does a negative when printed from. These markings, therefore, act as a true negative, and it was found by certain very careful experiments that cloth impregnated with oil and aloes, as was the winding sheet in question, will receive an impression when in contact with ammoniacal vapors such as would be given off from a sweat very rich in urea, as is the case in the sweat of a person dying a lingering and painful death. Concerning the sheet itself, they say: The impression of the head is excellent. The wounds produced by the crown of thorns and the marks of the blood drops are quite obvious. The wound in the side and even the marks of the stripes produced on the back by the flagellation are also quite evident. Each of these stripes has at its end an enlargement such as would be produced by a cord with a ball of lead at the end. It is well known that this form of scourge was employed by the Roman soldiers, and such a one has been found at Pompeii. Finally, the marks of the nails in the arms are not in the palm of the hand, but show that the nails were driven through at the level of the wrist. This report is of peculiar interest,

as it presents a set of new phenomena, giving distinct indications of the existence of emanations hitherto not recognized from both animate and inanimate bodies. The discovery of these emanations has been due to the fact that they affect the sensitized silver film, but there is no doubt that there is a very large number of substances also which are affected in a similar way, though not to the same degree as silver in the presence of aluminous substances.

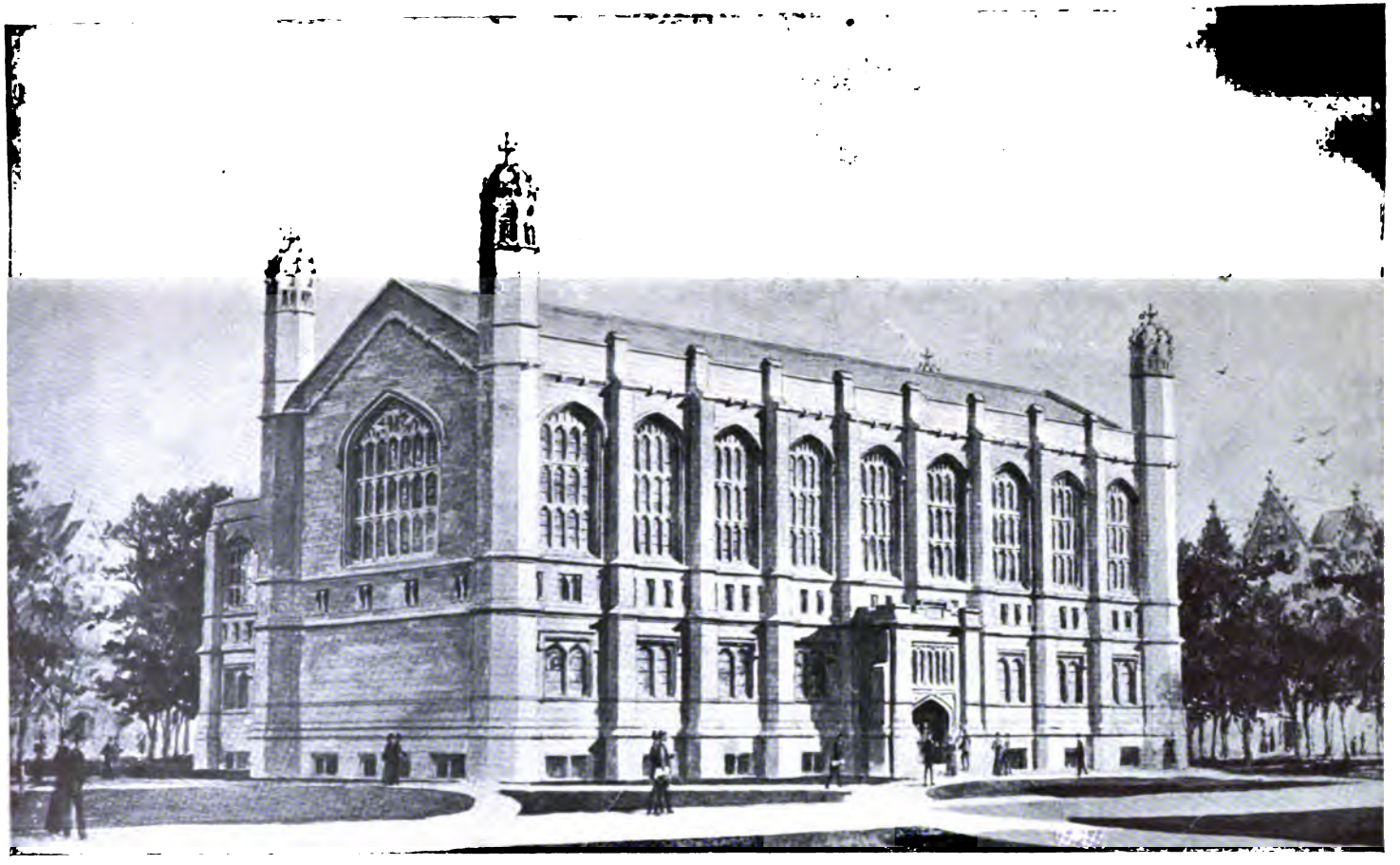
The deaths among chemists have been many during 1902, and include Sir Frederick Augustus Abel (September 6), eminent for his researches on explosives, and a past president of the British Association for the Advancement of Science; Albert Horatio Gallatin (March 25), long professor of chemistry in the New York University; John Hall Gladstone (October 6), for many years professor of chemistry in the Royal Institution, and a past president of the London Chemical Society; John Glover (May 1), the inventor of the Glover tower used in the manufacture of sulphuric acid and other improvements in chemical processes; James Hartford (June 13), a large manufacturer of aniline colors and other chemicals in Buffalo; Robert Hasenclever (June 23), a German technical chemist of high standing, and the inventor of numerous improvements in the alkali manufacture; John James Hummel (September 13), an accepted authority on the chemistry of dyeing, and author of text-books on that subject; Robert Clark Kedzie (November 7), for forty years professor of chemistry in the Michigan Agricultural College; Albert Ripley Leeds (March 13), for thirty years professor of chemistry in the Stevens Institute of Technology; William Manuel Mew (September 19), for thirty years chemist to the medical department of the United States Army in Washington; and Henry Morton (May 9), president of the Stevens Institute of Technology, and author of researches in uranium salts.

The first number of the *Chemical Trade Review* was published in Philadelphia in February, 1902.

CHESS. There was the usual activity in chess circles during 1902 and the various tournaments were held with great success. The annual international cable match of ten games between the United States and Great Britain was won by the former with a score of 5½ games won and 4½ lost. Of the seven cable matches thus far held, the United States has won four, Great Britain has won two, and one has resulted in a draw. Yale won the American intercollegiate tournament with 7½ victories and 4½ defeats, followed by Columbia with 6½ games won and 5½ lost, Harvard with 5½ won and 6½ lost, and Princeton with 4½ won and 7½ lost. The fourth annual international intercollegiate cable match between the American universities, Harvard, Columbia, Yale, and Princeton, and the English universities of Oxford and Cambridge, was for the first time won by the Americans, who scored 3½ of the 6 games played. Of this series the English players have now won two, one has been won by the Americans, and one has been drawn. Cornell won the tournament of the Tri-Collegiate Chess Association over the University of Pennsylvania, winning 4½ of the 6 games played. Brown, the other member, was unrepresented in 1902. The Oxford-Cambridge match resulted in a draw, each side winning 3½ games. In February, 1902, the International Masters' Tournament was held at Monte Carlo. Herr Lasker did not attend, but nearly all of the other great experts participated, and the play was closely contested and brilliant. Maroczy, of Budapest, captured the first prize, winning 14¾ out of the 19 matches, only ¼ game more than Pillsbury, the American expert. The other contestants, with the number of games won, were as follows: Janowski, 14; Teichmann, 13¼; Schlecter, 12; Tarrasch, 12; Wolf, 12; Tschigorin, 11½; Marshall, 11; Gunsberg, 10¾; Napier, 9½; Mieses, 9¼; Mason, 9; Albin, 8½. The second masters' tournament of the year, held at Hanover during July and August, was won by Janowski, of Paris, with 13½ victories in the 17 rounds of play. Pillsbury finished second with 12 games won, and was followed by Atkins, 11½ games; Mieses, 11 games; Napier, 10 games; Wolf, 10 games; Tschigorin, 9 games; Olland, 8½ games; Marshall, 8 games; Swiderski, 8 games.

CHESTERTON, George K., author of *The Defendant.* See Literature, American and English.

CHICAGO, UNIVERSITY OF, at Chicago, Ill., founded 1890. President, William Rainey Harper, LL.D. The year 1902 was one of notable expansion in the work and the organization of the university. The school of law was endowed, organized, equipped, and opened for work. A three-years' course of study is provided with an entrance requirement equivalent to three years of collegiate study. This is a standard fully three years higher than that held by any other law school west of New York. Consequently a large attendance is not anticipated for some years, that for the opening quarter being 80. The work of this school will be carried on through the entire year. A sum of $300,000 was pledged for a building and the work of construction has been begun. A large and exceedingly valuable library was collected previous to the opening of the school. The medical school completed one year in its



New Law School Building, University of Chicago

university quarters. The standards of admission have been raised until they represent approximately the completion of the freshman year in college. Within two years an additional year of preparation will be required, thus placing the medical school on the basis of the work of the Junior College, and fully two years in advance of any other school west of New York. The attendance in the two years of the medical school, given on the university campus, was 222; that of the entire medical school was 622. The trustees of the Rush Medical College have proposed a complete amalgamation, offering to turn over the entire plant and privileges of the college to the trustees of the university and to furnish an endowment of $1,000,000 before July, 1903. The school of education has been organized, consisting of the old department of education, the faculty of philosophy, and the faculties of the Laboratory Elementary school, the South Side Academy, and the Chicago Manual Training School. The vacancy occasioned by the death of F. W. Parker was filled by the promotion of Prof. John Dewey to the headship of the school. A plant and buildings costing $600,000 are in course of erection. The school of technology has received tentative shape, and the gift of $1,000,000 made by Mr. John D. Rockefeller at Christmas, 1902, is to be used largely as an endowment fund for this school. A separate faculty was constituted for the school of commerce, with the expectation that the work of this department would take a more definite form and a more technical character in the near future. The press building has been completed and occupied by the press division and temporarily by the library. The press division conducted a business of over $266,000 for the calendar year 1902. The decennial publications, originally announced as six volumes, have expanded into twenty-seven, and have begun to appear. Hitchcock Hall was also added to the plant of the university, while the Commons, the Student Club House, and the Assembly Hall have been enclosed. The most discussed action of the university in 1902 was the segregation of the women of the freshman and sophomore years in the women's quadrangle, and the giving of instruction in distinct classes for the women and for the men in these two years. There was no abandonment of coeducation, and the limited action taken only affected the younger class of students. A scheme of faculty pension was announced. The total attendance for the year on the three-quarter basis, including all the schools, was 4550. The total gifts for the year 1901-02 were $2,666,354. The gift of Mr. Rockefeller of $1,000,000 at Christmas, 1902, was in addition to this. See PSYCHOLOGY, EXPERIMENTAL (paragraph University of Chicago).

CHILD LABOR. The census reports return 168,624 children as employed in manufactures throughout the country, a gain of 39.5 per cent. over 1890. Child labor has increased in twelve of the factory States, remained stationary in two (Michigan and New Hampshire), and decreased in five States. The increase in Wisconsin was 193.5 per cent.; in Washington, 103.8; in Illinois, 92; in New Jersey, 51.4; in Pennsylvania, 47.8; and in Massachusetts, 44.9 per cent. South Carolina increased the number of children employed by 270.7 per cent.; Alabama by 143.8; North Carolina, 119.2; and Georgia, 81 per cent. Children number 17.5 per cent. of the factory workers in South Carolina and 14.6 per cent. of those in North Carolina. Private investigators put the proportion much higher, Professor Robbins estimating it at 25 per cent. for North Carolina, and somewhat more for the rest of the Southern States. The proportion is much larger for the textile industries. The census figures for cotton manufacturing put the proportion of children working in cotton mills in Alabama at 29.2 per cent., in South Carolina 26.8 per cent. The whole number of children employed in the cotton goods industry was 39,866, a gain of 70.1 per cent. over 1890. Silk and jute manufacture in Pennsylvania have 20.2 and 26.2 per cent. of child laborers respectively. Tobacco manufacturing in the South employs a large percentage of children. In the glass industry of Pennsylvania and New Jersey 14 and 15.7 per cent. of the workers are children. There is no uniformity in legislation in the different States. Thirty-six States and all the territories have imposed some restrictions on child labor. Only twenty-six of these, however, apply to factory work; the rest merely restrict the employment of children in mines. Twelve States put the age limit at fourteen years, one makes the limit fourteen years for girls and twelve for boys; two put it at thirteen, seven at twelve, and four (New Hampshire, Vermont, Nebraska, and California) permit employment of children ten years old. Most of the agricultural States and the States of the new "industrial South," have no limitations whatever on child labor, except Alabama, which prohibits employment of children under twelve in mines. In the southern factories children from eight years up are employed for eleven to twelve hours daily in the factories at from ten to forty cents a day, only the older and more experienced children earning thirty cents or more. In many instances actual earnings are far below these extremely low figures because of deductions made for various things, chiefly transportation. The average wages of children have decreased from 32 cents to 29 cents a day. In some places in the South nine cents is the daily wage for twelve hours' work. One of the reformers in Alabama says that mills are run for thirteen hours with but twenty

minutes for dinner, and during the rush season are often run until 9.30 or 10 o'clock at night. The campaign for securing adequate factory laws to protect childhood was vigorously pushed during 1902. The Democratic platforms in both South Carolina and Texas demand the prohibition of factory labor for children under twelve. The Virginia legislature is considering a law prohibiting the labor of children under twelve and regulating that of children between twelve and fourteen. The Georgia legislature, however, which meets but once in four years, adjourned without taking any action. This will spur the reformers in Alabama to renewed exertions, as the legislature in that State also meets only once in four years. Some employers assert that the children are better employed in the mills, where they can earn something to help support the family, than they would be idling about. Public opinion at the South is not favorable to restricting the labor of children. The selfishness of the manufacturer who wants to get cheap and abundant labor is not so culpable as the greed of fathers who lie and use every effort to force their little children into the factories. As the operatives are drawn mostly from the mountaineers and poor whites, even the barrenness and drudgery of the factory-town life are a distinct improvement, in some respects, over the old life. It is urged that a law compelling attendance at school for half a day and allowing work in the mills for a few hours per day would be the best solution of the problem. Apart from this indifference of public opinion in the South, northern capitalists and mill owners are largely responsible for this shameful exploitation of childhood.

This state of affairs is not peculiar to the South. The appalling extent and disgraceful conditions of child employment in mines, factories, and sweatshops throughout the country were repeatedly brought to public notice during the year. The coal strike commission discovered not only that very young children are employed in the mines and breakers, but that many children of miners are employed in silk mills on night shifts for a bare pittance. According to the reports of factory inspectors, which notoriously fail to give anything like full returns of the number of children actually employed, 9,000 children under fourteen years of age were employed in Massachusetts in 1902, 16,000 in New York, 20,000 in Illinois, and 35,000 in Pennsylvania; the figures for Pennsylvania do not include boys employed in the coal mines. The inspectors for Illinois report that the number of children working in establishments under their inspection doubled from 1897 to 1891. Some manufacturers of high-priced candies in Chicago compel mere children to work from 7.30 A.M. to 9.30 P.M. The New Jersey State Bureau of Factory Inspection reported that in 1900 5,968 children under sixteen were employed in factories. The United States Census reported 8,042 for the same year and State in manufacturing industries alone. It is not to be supposed that the census figures include more than a large minority of the actual number of children employed, for the returns were made at the will of the manufacturer, who cannot known the facts, in many cases, and has a strong motive for concealing them if he does know them. In nine towns in which the factory inspectors could find no children employed, the census inquiries found 519, while in four towns, reported in the census as employing no children, the inspectors report 196. During the glass-blowers' strike, it was brought out that little children were habitually apprenticed to glass-blowers as helpers by so-called orphans' homes and child-placing societies of Pennsylvania and New Jersey, and that a combination of the padrone system and veritable child slavery exists. The labor unions have taken the matter up, and it has been found that in the silk and textile mills of Passaic County, and the tobacco and cigar factories everywhere, children are employed for long hours, frequently at night, and under most unwholesome sanitary conditions. The aroused public opinion has compelled the factory inspectors to make strong efforts to enforce the law. A special committee of the University Settlement in New York City investigated conditions of child labor in the city and discovered the most flagrant violations of the law and of common decency. The committee pointed out the following defects in the present child labor law in New York State: (1) The direct employment of children is prohibited; yet, if accompanied by an adult member of the family to whom the wages are paid, a child may be employed, though the child's name does not apear on the pay roll; (2) children are required to attend school where certain branches are taught, but no study is prescribed; (3) the ten-hour law for children over fourteen allows any day to be lengthened provided a shorter day is made of Saturday; (4) vacation work is allowed to children over twelve, rendering it difficult to return them to school when it opens; (5) the definition of factory and mercantile work is incomplete. The law does not include the thousands of children employed as newsboys, bootblacks, peddlers, office boys, messengers, telegraph boys, and delivery boys for express companies. The condition of the delivery boys seems to be the worst. The committee investigated the case of an express company which employed children of eleven years and upwards from seven in the morning till nine or ten at night. On Fridays and Saturdays they work until midnight, and, if all the packages are not delivered at midnight on Saturday, the boys

must work on Sunday until everything is finished. The conditions of work, wages, and living are such that the Memphis *Commercial-Appeal* says: "Compared to this the child slavery of the South is the greatest freedom." Both Kentucky and Kansas passed laws prohibiting the labor of children under fourteen years in factories.

Foreign.—In Europe legislation to protect children has progressed far. England has had a half-time factory and school law for children of nine and over since 1844, the half-time age having since been raised to eleven; and a fourteen-year age limit for full-day work since 1874. In Germany, the limit for full-day work is fourteen, and for any factory work at all, thirteen years. In Holland, Belgium, France, Austria, Norway, and Sweden the limit is twelve; in Russia fifteen, half time being allowed from twelve up; in Switzerland, fourteen; in Denmark fourteen, with half time from ten up. In Italy the limit was nine years, but in 1902 it was raised to twelve years in most cases. The enforcement of the labor laws in European countries is much better than in America. Few violations are reported and these are usually dealt with promptly.

CHILDREN'S AID SOCIETY, of New York City, was organized in 1853 for the education of poor children, housing them in lodging houses, and procuring homes for them, when desirable, in rural districts. The following figures are for 1902: in the industrial schools 16,364 children were taught and partly fed and partly clothed; 19,427 visits were made by the teachers and visitors to the homes of the children, and practical relief was given to poor families embracing 9,452 individuals; in the kindergarten there was an average daily attendance of 2,105, and in the classes for crippled children 224 helpless little ones were conveyed each day between home and school in wagonettes. The lodging houses sheltered 4,226 boys and girls; through the emigration and placing-out department 474 children were provided with country homes and 247 placed out at wages, and 242 runaway children were restored to their friends or relatives. Unemployed and destitute families, numbering 712 persons, were assisted to friends or employers in the country, 645 boys received training at the farm school, 1,486 children were aided through the sick children's mission, and the number benefiting by the fresh air fund was 21,374. Total number of beneficiaries during the year, 55,222; receipts and expenditures balanced at $543,109.97. President, William Church Osborn; secretary, C. Loring Brace, United Charities Building, New York City.

CHILE, a South American republic extending between the Andes and the Pacific from Peru to Cape Horn. The capital is Santiago.

Area, Population, and Education.—The area of Chile, without taking into account the rectification of the boundary pursuant to the arbitration decision of November, 1902, is estimated at about 267,000 square miles, and the population, at the end of 1900, about 3,128,000, exclusive of perhaps 50,000 Indians. The state religion is Roman Catholicism. Public instruction is free, but not compulsory. Secondary, higher, and professional schools are maintained. In 1900 there were 1,547 public primary schools with an enrollment of 113,863 pupils; in 1901, 1,700, with an enrollment of 124,265.

Government.—The executive authority is vested in a president, who is assisted by a council of state and by a responsible ministry. The president for the five-year term ending September, 1906, is Señor Jerman Riesco. The legislative power devolves upon a congress of two houses, the senate and the chamber of deputies.

Army and Navy.—The standing army in 1901 was fixed at a maximum of 17,385 men, while, under the military law of 1900, 400,397 were liable to service. The fleet has been reported to comprise 5 armor-clads, 2 second-class cruisers, 2 third-class cruisers, 15 first-class torpedo boats, 4 second-class torpedo boats, and 11 gunboats. In 1902 three new torpedo boats were added and a battleship of 11,800 tons was nearing completion. For the equalization of the Chilian navy with the Argentine, agreed upon in 1902, see the paragraph Chile and Argentina.

Finance.—The nominal monetary standard is gold, and the unit of value the peso, worth 36.5 cents. On July 30, 1898, the president was authorized to issue 50,000,000 pesos in paper, the conversion of which was to begin January 1, 1902; but on December 31, 1901, a law was promulgated postponing the commencement of metallic conversion to January 1, 1905. By the same law the president was empowered to coin, during a period of two years, not more than 4,000,000 pesos. Ordinary revenue and expenditure in pesos (36.5 cents) are reported at 94,791,398 and 93,431,380 respectively for 1899, and 103,965,030 and 104,730,054 respectively for 1900. The budget for 1902 showed estimated revenue and expenditure of 96,950,000 pesos and 95,850,000 pesos respectively. The largest estimated receipts were: Nitrate (export) duties, 48,000,000 pesos; import duties, 26,000,000; railways, 15,000,000—the largest estimated expenditures: Railways, 19,875,624 pesos; department of finance (principally interest on public debt), 19,625,458; war, 13,033,481; department of the interior, 11,585,327; marine, 11,120,326. The import and export customs receipts for 1900 are reported at 78,467,461 pesos, and for 1901 69,560,333 pesos. On December 31, 1900, the external

debt amounted to £17,230,689 (229,742,400 pesos), and the internal debt, including some municipal debts charged to the state, 75,826,488 pesos—total, 305,568,888 pesos. On December 31, 1901, the external debt was reported to stand at 227,234,400 pesos, and the internal debt 75,437,881 pesos. The figures given here for internal debt include Chile's paper money.

Industries and Commerce.—The principal industries are agriculture and mining, and the most important product is nitrate of soda. Practically the world's supply of nitrate comes from Chile. The industry is controlled by an association which was formed in November, 1900, to limit the output, maintain prices, and dispose of the product through one general agency. Although this association comprised, in 1902, about 100 nitrate works, it distrusted the future of the industry, fearing that the establishment of new works, outside its control, would cause a disastrous increase in production.

The total values of the imports and exports in pesos (36.5 cents) are stated as follows:

	1898	1899	1900	1901
Imports	102,262,058	106,260,358	128,538,142	139,300,766
Exports	168,069,431	163,106,133	167,674,636	171,844,976

The principal imports are coal, cotton, and woollen goods, iron and steel goods, paper, and (in 1901) wheat. The values in pesos of the principal exports in 1900 and 1901 respectively are reported as follows: Mineral products, 147,783,276 and 158,944,207; agricultural products, 5,831,098 and 4,684,318; animals and animal products, 3,989,659 and 4,340,191; and manufactures, 3,297,902 and 3,462,137. Next to nitrate the leading export is copper bullion. These exports in metric tons with values in pesos, are stated as follows:

	Nitrate of Soda.		Copper Bullion.	
	Metric Tons.	Pesos.	Metric Tons.	Pesos.
1898	1,294,227	90,675,297	20,600	13,759,498
1899	1,380,718	96,650,282	17,311	14,928,273
1900	1,465,935	109,945,156	20,340	17,699,200
1901	1,291,958	118,860,131	24,480	19,627,114

Other important exports are iodide, coal, gold, silver, copper ore, barley, leather, wool, and honey. In 1901 the imports from and the exports to countries of greatest trade importance were (special commerce): Great Britain, 42,482,000 pesos and 123,236,000 pesos respectively; Germany, 34,322,000 and 20,227,000; United States, 12,099,000 and 6,387,000; France, 9,290,000 and 7,970,000; Peru, 6,715,000 and 1,675,000; Australia, imports, 9,313,000.

In 1902 there were reported 2,880 miles of railway in operation.

Political.—During 1902 there were several changes in ministry. The new cabinet formed in the latter part of November had Señor Domingo Amunategui as minister for foreign affairs and Señor Fernandez Albano as minister of the interior. Apparently the most noteworthy ministerial change in 1902 was the resignation of the Tocornal cabinet in April and its supersession by a cabinet formed under Señor Luco. The Tocornal ministry resigned on account of the general dissatisfaction with its action, alleged unconstitutional, in borrowing from the conversion fund to pay for newly acquired armaments.

A drastic liquor law passed at the end of 1901 and going into effect in 1902, provided for the licensing of distilleries, the prohibition of all alcohols that are not ethylic or vinous, for the severe restriction and supervision of the retail trade, and for punishment for drunkenness.

Chile and Argentina.—A new boundary dispute with Argentina arose in the autumn of 1901. This concerned the region of Ultima Esperanza, in the far south, and did not fall within the jurisdiction of the British commission already appointed to settle an Argentine-Chilian boundary controversy in pursuance of agreements of April, 1896, and September, 1898. Toward the end of 1901 not a little bitter feeling had developed between the two countries, but on December 25 a protocol was signed submitting the dispute to the arbitration of the British government. In January, 1902, on behalf of the existing boundary commission, Sir Thomas Holdich went to Ultima Esperanza to examine the geographical conditions. Finally on May 28, 1902, a general arbitration treaty was signed at Santiago by Señor José Francisco Vergara Donoso, Chilian minister for foreign affairs, and Señor José Antonio Terry, Argentine minister to Chile. The treaty provided for the submission to arbitration of all questions arising between the two governments and impossible of direct

settlement, in so far as such disputes should not affect the constitution of either country. The arbitrator named was His Britannic Majesty, or, in case either of the high contracting parties should sever its friendly relations with Great Britain, the government of the Swiss Confederation. The treaty was to remain in force for ten years from the date of exchange of ratifications and was to be renewable. At the same time (May 28, 1902) two other agreements were signed by the plenipotentiaries named above: the one provided for renouncing, on the part of both governments, the acquisition of war vessels in the immediate future, and for negotiations looking toward a "prudent equilibrium" between the two fleets; the other agreement provided that the general arbitrator between the two countries (His Britannic Majesty) be requested to appoint a commission to mark on the ground the boundary lines that the arbitral decision might establish. Ratification of these conventions by the two governments was completed by August 12, 1902.

This consummation relieved a tension that had existed for many years. War or even continued unfriendly rivalry between the two countries would have been to the detriment of both. Aside from heavy indemnities, the military success of one over the other would probably mean the loss to Argentina of her Patagonian territories or the loss to Chile of the provinces acquired from Bolivia and Peru as the outcome of the war of 1879-82, as well as the loss of her southern territory. The development of both countries depends largely on the introduction of foreign capital. Such capital amounting to nearly $600,000,000 has already been invested in Argentina, and a smaller though still very considerable amount in Chile. The major portion in each case is British. It is highly probable that the assurance of peaceful relations between the two countries will attract much more foreign capital and serve as an effective aid to industrial progress. It should be pointed out, however, that, although the agreement for the limitation of naval armaments goes far to dispel doubt of the pacific intentions of the two governments, the exception from arbitration of questions "affecting the precepts of the constitution of one or the other country" leaves an opportunity for future complications should either government wish to evade the spirit of the treaties.

The boundary award of the British commission was made on November 20, 1902, in the name of King Edward. This closed a dispute which had existed for many years and upon which the arbitrators had been engaged for three years. Of the disputed territory Chile received about 55,000 square kilometres and Argentina about 40,000 square kilometres, but Argentina got the larger share of fertile land. (The square kilometre equals .386108 square mile.) The decision was received with little apparent disfavor in both countries. The general boundary dispute arose from a treaty that defined the line of frontier as following the summits of the Andes and the continental water-divide. But in many cases the line of summits does not coincide with the line of water-parting: many rivers rise east of the Andes and flow westward through cuts in the mountains to the waters of the Pacific. It was thus impossible for the boundary commission to follow either water-shed theory, and accordingly its decision was a compromise "between opposing views of physical geography and awkward accomplished facts of possession and occupation." Thus the new frontier is partly physical and partly political. The boundary report was submitted to King Edward by Lord Macnaghten, Sir John Ardagh, and Sir Thomas Holdich, members of the arbitration commission. The text of the King's award was as follows:

"The boundary in the region of the San Francisco Pass shall be formed by the line of water-parting extending from the pillar already erected on that pass to the summit of mountain Tres Cruces. The basin of Lake Lacar is awarded to Argentina. From Perez Rosales Pass, near the north of Lake Nahuel Huapi, to the vicinity of Lake Biedma, the boundary shall pass by Mount Tronador, and thence to the River Palena by the line of water-parting determined by certain obligatory points which we have fixed upon the rivers Manso, Puelo, Fetaleufu, and Palena (or Carrenleufu); awarding to Argentina the upper basins of those rivers above the points which we have fixed, including the valleys of Villegas, Nuevo, Cholila, Colonia de 16 Octubre, Frio, Huemueles, and Corcovado, and awarding to Chile the lower basins below these points. From the fixed point on the River Palena, the boundary shall follow the River Encuentro to peak Virjen; thence to the line which we have fixed, crossing Lake General Paz; thence by the line of water-parting determined by the point which we have fixed upon the River Pico; from whence the boundary shall ascend to the principal water-parting of the South American continent at Loma Baguales, and follow that water-parting to the summit known as La Galera. From this point the boundary shall follow certain tributaries of the River Simpson (or Southern Aisen), which we have fixed, and attain peak Apywan, from whence it shall follow the water-parting determined by a point which we have fixed on a promontory from the northern shore of Lake Buenos Ayres. The upper basin of the River Pico is thus awarded to Argentina and the

lower basin to Chile. The whole basin of the River Cisnes (or Frias) is awarded to Chile; also the whole basin of the Aisen, with the exception of the tract at headwaters of the southern branch, including the settlement Koslowsky, which is awarded to Argentina. The further boundary is determined by lines which we have fixed across Lake Buenos Ayres, Lake Pueyrredon (or Cochrane), and Lake San Martin, thus assigning the western portions of the basins of these lakes to Chile and the eastern portions to Argentina, the dividing ranges carrying Mounts San Lorenzo and Fitz-Roy. From Mount Fitz-Roy to Mount Stokes the frontier is already determined. From the vicinity of Mount Stokes to the fifty-second parallel of south latitude, the boundary shall first follow the continental water-parting defined by the Sierra Baguales, diverging from the latter southwards across the River Vizcachas to Mount Cazador, at the southeastern extremity of which range it crosses the River Guillermo and rejoins the continental water-parting to the east of Mount Solitario, following it to the fifty-second parallel, from which point the frontier has already been defined by mutual agreement between the respective States. A more detailed definition of the line of frontier will be found in the report submitted to us by our tribunal and upon the maps furnished by the experts of the republics of Argentina and Chile, upon which the boundary which we have decided upon has been delineated by the members of our tribunal and approved by us. Given in triplicate under our hand and seal at our Court of St. James's, this twentieth day of November, 1902, in the second year of our reign.

"EDWARD, R. & I."

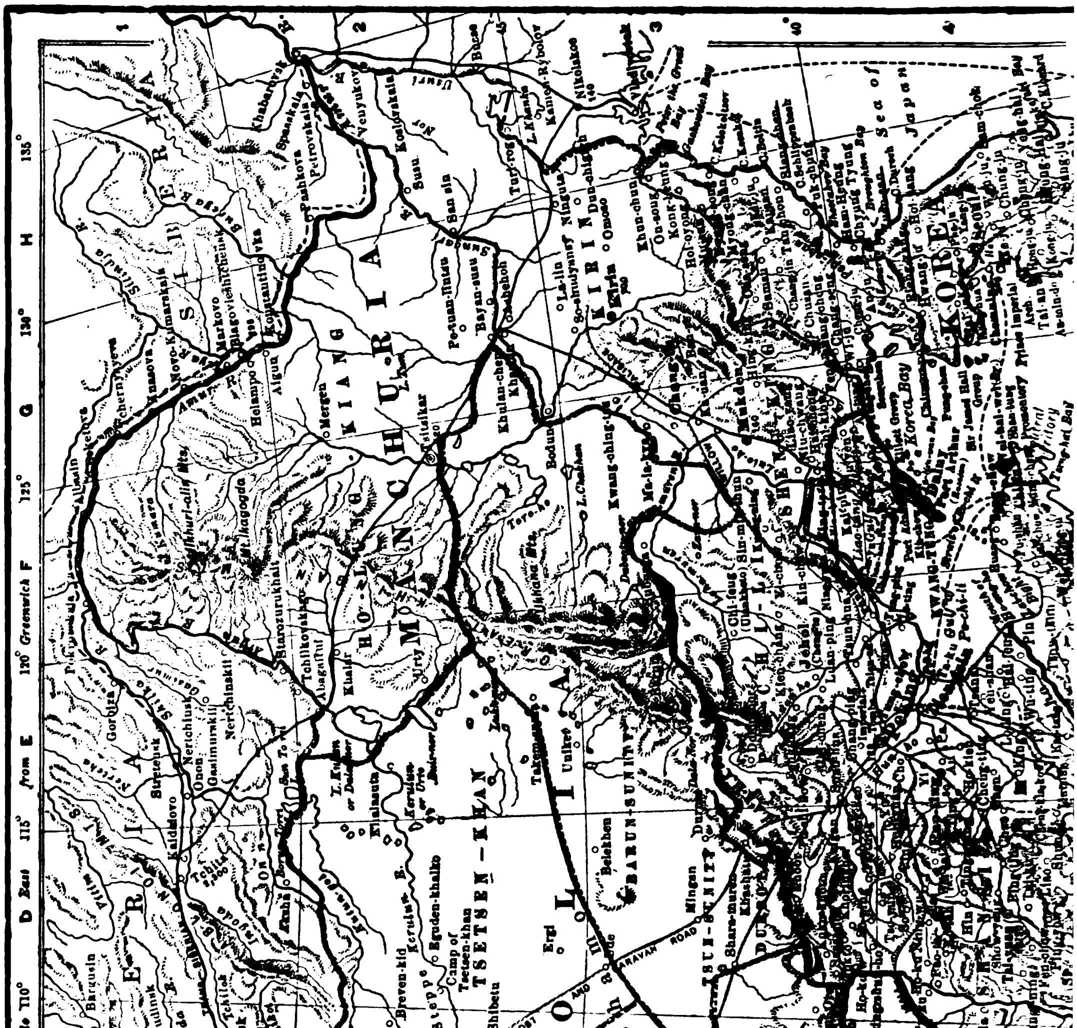
CHINESE EMPIRE, an absolute monarchy of Asia lying between Siberia on the north, and French Indo-China and British India on the south. The capital is Peking.

Area and Population.—No official records of either the area or population of the empire had been compiled for many years previous to 1902, but recent estimates placed the total area at about 4,234,910 square miles, and the population at about 399,-680,000. In 1902 an official re-census ordered by the imperial government, in order to facilitate the increase of taxes made necessary by the war indemnity, was completed. By the census of 1902 the area of the eighteen provinces of China proper was placed at 1,532,817 square miles and the population at 407,737,305, and the area of the entire empire at 4,278,374 square miles with a population of 426,447,325. The following table of the results of the census is taken from the *Lloyd de l'Extreme Orient:*

PROVINCE.	Area in Square Kilometres.*	Population.	Population Per Square Kilometre.
Chili	300,000	20,937,000	70
Shantung	145,000	38,247,900	263
Shansi	212,000	12,200,456	57
Honan	176,000	35,316,825	201
Kiangsu	100,000	13,980,235	140
An-hwai	142,000	23,672,314	167
Kiangsi	180,000	26,532,125	148
Chekiang	95,000	11,580,692	122
Fokien	120,000	22,876,540	191
Hupe	185,000	35,280,675	191
Hunan	216,000	22,169,673	103
Kansu	325,000	10,385,376	32
Shensi	195,000	8,450,182	43
Sechwan	566,000	68,724,890	121
Kwangtung	259,000	31,865,251	123
Kwang-si	200,000	5,142,330	26
Kweichau	174,000	7,650,282	44
Yunnan	380,000	12,721,574	34
Total for 18 provinces	3,970,000	407,737,305	103
Manchuria	942,000	8,500,000	9
Mongolia	3,543,000	2,580,000	.9
Thibet	1,200,000	6,430,020	5
Turkistan	1,426,000	1,200,000	.8
Total	11,081,000	426,447,325	37.7

*A square kilometre equals .386108 square mile.

The entire foreign population of China, according to imperial customs returns, was, at the beginning of 1901, only 16,811, including Japanese and other Asiatics. The bulk of the inhabitants are adherents of Buddhism, but Confucianism is the recognized state religion, the emperor being its supreme head. The two, with Taoism, constitute the principal religions of China, but there are said to be 30,000,000 Mohammedans, chiefly in the northeast and southwest. The Roman Catholic population is estimated at 1,000,000, and the Protestant population, of all sects, 50,000.


Longitude East from Greenwich
S I B E R I A
Lake Baikal
Irkutsk
M O N G O L I A
M A N C H U R I A
K O R E A
ORDOS
ALA-SHAN
TSETSEN-KHAN
TUSHETU-KHAN
DZASAKTU-KHAN
KOBDO
Urga
KIRIN
HEI-LUNG-KIANG
SHENG-KING
CHI-LI
SHAN-SI
Korea Bay
Sea of Japan
Port Arthur
Vladivostok
Khabarovsk
Blagovieshchensk
Tsitsikar
Mukden
Kiakhta
CHINESE POST ROAD
RUSSIAN POST AND CARAVAN ROAD


CHINA,
MANCHURIA, MONGOLIA,
and
KOREA.
Capitals of Countries:
Capitals of Provinces:
Railroads: Finished:
Proposed or under construction:
Roads:
0 50 100 200 300
Scale of Statute Miles.
0 100 200 300 400
Kilometers.
HONGKONG
AND VICINITY.
SCALE OF MILES
Treaty Ports are underscored in Red
TIBET
C H I N A
SZE-CHUEN
HU-PEH
HO-NAN
SHEN-SI
NGAN-HWUI
KIANG-SU
CHE-KIANG
KIANG-SI
HU-NAN
KWEI-CHOW
YUN-NAN
KWANG-SI
KWANG-TUNG
FU-KIEN
FORMOSA
TONGKING
ANNAM
SIAM
UPPER BURMA
JAPAN
Yellow Sea
(Hwang-hai)
Eastern Sea
South Sea
(Nan-hai)
Gulf of Tongking
Hainan
Formosa Strait
Korean Archipelago
Quelpart I.
Mouths of Yang-tse-kiang
Shanghai
Nanking
Hankow
Canton
Hongkong (British)
Victoria
Macao
Amoy
Fu-chow
Wen-chow
Ning-po
Swatow
Hanoi
Kul-lin
Kwei-yang
Yun-nan
Cheng-tu
Chung-king
Wu-chang
Kow-lung
Deep Bay
Mirs Bay
Lan-tao
Tropic of Cancer
Longitude East 115° from Greenwich
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Government.—The supreme head of the Chinese government is the emperor. Succession is not hereditary, but each emperor designates his successor. The present sovereign, Kwang Hsu, born in 1872, was proclaimed emperor through the influence of the Empress Dowager, Tszu-Hszi, in 1875, she acting as regent until 1887. The supreme direction of the imperial government, however, rests in the Chun Chi Ch'u, or grand council, through which it is exercised by the Nei-Ko, or cabinet, of four members. Under the cabinet the government is carried on through an extensive system of boards and councils, all being, in theory, organized with the greatest care for detail and exactness in respect to their powers and duties, but in fact this is far otherwise. Each of the eighteen provinces of China proper is ruled by a viceroy, responsible to the imperial government. The provinces are subdivided into departments and districts.

Army and Navy.—The army of China comprises, principally (1) the national army (Ying Ping), known as the "Green Flags," consisting of eighteen corps, one for each province, and numbering nominally between 540,000 and 660,000 men, although no more than 200,000 are available; and (2) the "Eight Banners," an hereditary force nominally containing 300,000 men, mostly Manchus, and maintained on a war-footing of about 100,000. In addition to these forces, mercenary troops, local militia, and Mongolian and other irregular cavalry, bring the total army strength on a war footing up to about 1,000,000.

The navy of China comprised in 1902 nine cruisers of various sizes, none of them of the first class, four torpedo gunboats, twenty-one torpedo boats and a fleet of twenty-two river gunboats. A considerable extension of the navy, which will add to it a number of effective modern fighting ships, has been planned.

Finance.—There are no official figures obtainable as to the finances of the Chinese Empire, but unofficial estimates, based on figures compiled by British consular officials for the three years preceding the Japanese war (1894) showed that the amount of revenue and expenditure as accounted for by the provincial authorities balanced at about 89,000,000 haikwan taels (1 haikwan tael valued in United States money at 77.1 cents January 1, 1901; 68 cents January 1, 1902, and 59.4 cents January 1, 1903). For the period 1902-10 the imperial authorities, in order to meet the increased expenditure on interest and redemption of the new debt caused by the indemnity, have required the viceroys and governors of provinces to increase their annual contributions by 18,700,000 taels. The receipts of the imperial Chinese customs service, administered under the supervision of European and American officials under the control of Sir Robert Hart, by whom the system was organized, amounted in 1899 to 26,661,490 haikwan taels, and in 1900—the year of the Boxer uprising, which would account for the decrease—to 22,873,986 haikwan taels. In this service over 900 Europeans and Americans are employed.

The land tax annually amounts to about 25,000,000 haikwan taels, and the salt duty and *likin* to about 14,000,000 haikwan taels. The foreign debt, including the Japanese indemnity, is about £55,755,000, or, including the indemnity due the Powers, £123,255,000.

Commerce.—The condition of trade in China at the end of 1901 was vastly better than would be inferred from comparisons of the totals of exports and imports for that year with those of previous years; for during a large part of 1901 conditions were not at all favorable to trade. The revival during the latter part of the year, after the restoration of order, was remarkably rapid and strong. The total export and import trade of China for 1901 was 437,959,675 haikwan taels, a larger amount than any other year except 1899, when it reached 460,533,288 haikwan taels. There was no rush of imports to escape the increased duty except at one or two southern ports, and trade was thoroughly healthy. The value of merchandise imports exceeded the value of merchandise exports by 49,916,706 haikwan taels, and for the first time in many years there was a net export of silver amounting to 6,097,802 haikwan taels, while the net export of gold amounted to 6,635,313 haikwan taels. The remaining balance against China is accounted for by the remittances from Chinese residents abroad, missionary contributions, expenditures by foreign countries on troops and officials, and by investments of foreign capital in railroads and other enterprises, all of which swell the imports of the empire, but do not make necessary any exports to balance the account. The values of imports and exports for 1900 and 1901 by countries are shown in the table below.

The total value of net imports for 1901 was estimated at 268,302,918 haikwan taels, an increase of 57,232,496 haikwan taels over 1900, and more than 3,000,000 haikwan taels greater than in 1899, which surpassed every other year. The imports of opium increased but little because of the increase in the production of native opium. The imports of cotton goods increased by about 24,000,000 haikwan taels. American heavy goods were especially demanded. The imports of American drills were 2,351,479 haikwan taels in 1900, and 4,834,879 haikwan taels in 1901; American sheetings, 6,236,255 haikwan taels in 1900, 7,636,714 haikwan taels in 1901. By far the

most important item in the cotton imports is Indian yarn, which increased from 19,214,514 haikwan taels in 1900 to 35,937,651 haikwan taels in 1901. Japanese yarn ranks next with values of 10,044,515 haikwan taels and 11,297,538 haikwan taels, respectively, for 1900 and 1901. Imports of other cotton goods from Japan also increased greatly. The imports of raw cotton nearly doubled because of the short crop in China. Imports of cigars and cigarettes more than doubled. The demand for American flour continued to increase. One of the chief arguments in the United

Countries.	Imports from (in Haikwan Taels).		Exports to (in Haikwan Taels).	
	1900	1901	1900	1901
Great Britain	45,467,409	41,223,538	9,356,428	8,561,045
Hong Kong	93,846,617	120,329,884	63,961,634	71,436,103
India	16,816,029	28,949,358	2,865,345	3,148,369
Singapore and Straits	2,625,258	3,828,142	2,435,355	2,684,700
Australia, New Zealand, etc	517,884	574,362	861,020	173,424
South Africa and Mauritius	.....	.....	224,159	299,772
British America	653,591	1,635,457	457,589	181,348
United States	16,724,493	23,529,606	14,751,631	16,572,988
Philippine Islands	12,815	13,615	113,831	83,674
South America	.....	.....	15,068	9,516
Continent of Europe (except Russia)	10,273,405	17,046,453	24,976,619	29,268,913
Russia via Odessa and Batoum	4,236,507	3,004,315	6,390,272	4,830,632
Russia and Siberia via Kiakhta	.....	8,865	832,461	1,701,814
Russian Manchuria	136,956	346,979	5,151,382	2,748,354
Japan and Formosa	25,752,694	32,567,656	16,938,053	16,875,725
Macao	2,236,289	1,868,086	4,710,359	5,239,570
Cochin-China, Tonkin and Annam	986,445	867,459	1,302,833	1,455,377
Siam	5,669	141,994	715,076	875,472
Java and Sumatra	599,999	490,452	333,027	408,714
Turkey in Asia, Persia, Egypt, Algiers, Aden, etc.	1,237,413	693,494	2,604,610	3,102,247
Total foreign countries	211,070,422	268,302,918	158,996,752	169,656,757
Corea	1,188,538	513,516	804,060	1,178,608
Grand total	212,258,960	268,816,424	159,800,812	170,835,365

States for Chinese exclusion is that they do not spend their earnings in this country but send them back to China. It has been overlooked that these remittances, amounting to more than $10,000,000 in gold annually, are made in the shape of American products, for which it is to be presumed the Chinese workmen in America have given a fair equivalent. American kerosene oil exceeded by 6,000,000 gallons the record importation of 1894. Russian oil about held its own, while imports of Sumatra oil more than doubled in quantity and nearly doubled in value. Oil from Borneo and Japan appeared in the returns for the first time, suggesting the possibility of two new rivals for the Chinese oil market. Although woolen goods are not used extensively in China as yet, even in the colder parts, still the woolen trade showed a very satisfactory growth during 1901. Of metal imports slab tin is by far the most important, reaching a value of 1,906,658 haikwan taels in 1900 and 2,832,446 haikwan taels in 1901. Nail rods and bar iron come next in importance, with values of 414,445 and 411,272 haikwan taels, respectively, for 1900; and 622,459 and 698,987 haikwan taels for 1901. Machinery was almost the only item showing a decrease of imports—1,450,091 haikwan taels in 1900, and but 1,220,167 haikwan taels in 1901.

The following table gives the principal imports for 1900 and 1901, with values in haikwan taels:

Articles.	Imports.		Articles.	Imports.	
	1900	1901		1900	1901
Opium	31,030,811	32,936,579	Oil, kerosene—		
Cotton goods	75,606,360	99,651,999	Sumatra	2,503,171	4,353,162
Woolen goods	3,422,645	4,727,371	Rice	11,376,675	7,050,867
Metals	9,178,452	10,428,662	Sugar—		
Cigars, etc	1,011,653	2,217,790	Brown	2,390,671	4,825,492
Coal	6,388,415	8,352,332	White	1,022,535	2,509,991
Cotton, raw	1,832,966	3,868,352	Refined	2,677,371	6,433,997
Fish, etc	3,391,338	4,274,600	Wines, beer, etc	1,474,860	3,002,888
Flour	3,329,868	4,726,962	Total	160,225,029	214,439,437
Matches (Japan)	2,134,827	2,963,531	All other	50,845,393	53,863,481
Oil, kerosene—					
American	6,304,384	8,638,501	Grand total	211,070,422	268,302,918
Russian	5,148,027	4,276,141			

The total value of native exports for 1901 was 169,656,757 haikwan taels, an increase of 10,660,005 haikwan taels over 1900, but far below the record year 1899,

when exports amounted to 195,784,832 haikwan taels. The necessity of collecting larger revenue to pay the indemnities makes it desirable to increase both exports and imports. The building of railroads and the abolishing of some burdensome internal taxation in the shape of *likin* have facilitated the development of commerce, but the adulteration of products and the arbitrary exactions of provincial and local rulers prevent a normal growth of industry and commerce. Tobacco of excellent quality is produced in China, and in 1898 the exports were 371,137 piculs (£494,849), but adulteration and fraudulent packing spoiled the excellent prospects of the industry, though it improved greatly during 1902. The export of feathers, once of great importance, was the smallest in 1901 since 1895, and will no doubt continue to decrease unless the Chinese merchants can be prevented from mixing in dirt and low-grade feathers with high-grade feathers. The same complaints of adulteration, dishonesty, and carelessness in preparing products for shipment were heard in every line of trade. Exports of tea fell off, partly because of poor quality and partly because of a short crop, owing to heavy rains in April. Exports of black tea were the lowest on record. Russia took more Indian and Ceylon teas, and the China teas have lost the Canadian and Australian markets because of deteriorated quality and the unreasonably heavy export duty and *likin*, which have raised the cost of low grade teas sometimes as much as 40 per cent. While these conditions continue the trade must continue to decline. It would be easy to relieve the tea trade from some of the burdens of the heavy export duty, as it is the only article of export upon which the duty is at all onerous. The silk trade was very satisfactory in 1901, the principal increase being in steam filature fibre. Raw silk exports increased more than exports of manufactured silk. The first table on the following page gives the principal exports for 1900 and 1901, with their value in haikwan taels.

The total customs revenue for 1901 was 25,537,574 haikwan taels, which has been excelled only in 1899, when the collections amounted to 26,661,460 haikwan taels. Collections from every source were greater than in 1900, and there were increases over 1899 in import duties, coast trade duties, tonnage dues, and transit dues. The total value, expressed in haikwan taels, of the trade of the ports under foreign supervision for 1900 and 1901 is given below, together with the total revenues collected:

Treaty Ports.	Total Foreign and Domestic Trade.		Revenue Collected.	
	1900	1901	1900	1901
Amoy	13,943,228	14,719,058	665,829	690,548
Canton	52,405,172	59,990,264	1,838,930	2,159,627
Chifu	27,058,328	37,660,510	556,862	764,999
Chinkiang	23,206,055	27,389,216	891,042	991,628
Chungking	24,452,066	24,268,728	376,899	514,949
Fuchow	15,341,825	14,432,516	1,188,340	1,040,091
Hangchow	9,433,771	12,105,667	534,665	618,128
Hankow	57,050,639	62,219,698	2,115,759	2,087,668
Ichang	1,838,070	2,638,955	600,376	869,705
Kiao-chau	3,967,150	8,730,920	59,482	107,414
Kiukiang	16,356,547	16,863,211	880,181	828,201
Kiungchou-fu	3,753,233	4,429,866	157,784	178,238
Kongmun or Kumchuk	1,811,065	2,329,737	30,950 9,433	37,724 23,318
Kowloon	47,077,593	49,128,622	350,024	404,450
Luppa	13,573,069	14,606,412	367,069	378,605
Lung-chou-fu	85,636	164,494	5,319	5,994
Mengtsu-hsien	5,256,938	6,815,273	179,138	224,185
Nanking	3,868,595	4,620,077	147,449	200,893
Ningko	15,227,380	16,964,355	686,184	674,973
Niuchwang	22,024,643	42,262,209	498,244	751,621
Pakhoi	3,876,466	4,221,897	135,837	156,939
San-to-as	656,216	1,247,039	77,185	140,282
Samshui	2,282,882	2,607,466	90,009	113,664
Semao	213,894	244,649	6,767	9,008
Shanghai	97,729,159	118,425,776	7,117,887	8,152,696
Shashi	550,759	1,112,609	6,620	12,783
Suchow	1,173,945	2,345,070	35,654	93,220
Swatow	43,244,520	44,425,745	1,504,609	1,559,014
Tientsin	31,920,658	49,411,423	516,706	764,514
Wenchow-fu	1,459,630	1,460,789	44,978	45,981
Wuhu	18,080,948	13,289,752	894,126	584,348
Wuchow	6,526,603	7,496,243	303,339	348,215
Yochow	143,827	400,509	790	3,934
Total	457,707,140*	543,574,293*	22,873,985	25,537,574

* Figures are the sum of foreign imports and native exports only, as native imports into one port are exports from another port.

Shipping entries from foreign ports were 7757 vessels, aggregating 6,339,000 tons, as compared with 6948 vessels and 5,539,000 tons in 1900. Coastwise entries were

Articles.	Exports. 1900	Exports. 1901	Articles.	Exports. 1900	Exports. 1901
Beancake	2,471,907	4,704,684	Silk, raw	39,732,631	50,027,282
Beans	2,996,179	3,866,035	Silk, manufactured	9,711,838	10,888,338
Cattle, sheep, pigs and goats	1,417,794	1,758,517	Skins, etc	2,374,780	4,026,698
Chinaware, etc	1,627,368	1,692,561	Straw braid	4,371,157	3,590,784
Clothing, boots and shoes	2,039,743	1,860,601	Sugar	2,963,316	3,007,246
Cotton, raw	9,860,969	4,705,606	Tea, black	17,592,687	11,408,872
Firecrackers, etc	1,620,817	1,979,719	Tea, green	4,717,729	4,397,895
Hides, cow and buffalo	4,147,532	4,522,701	Tea, brick, black	2,818,721	2,129,682
Mats and matting	3,304,937	3,457,160	Tea, brick, green	257,647	432,072
Medicines	1,478,170	1,518,516	Tobacco leaf, prepared	1,941,769	2,150,141
Oil, vegetable	2,290,727	2,796,689	Wool	1,615,690	1,609,130
Paper	2,506,323	2,666,644	Total	126,356,276	131,930,159
Provisions and vegetables	2,496,445	2,732,586	All other	32,640,476	37,726,598
			Grand total	158,996,752	169,656,757

24,438 vessels of 17,853,000 tons, as against 27,431 vessels of 14,850,000 tons in 1900. The total tonnage entries and clearances were 48,416,000, and of this Great Britain contributed 54 per cent., Germany 16 per cent., China 13 per cent., Japan 11 per cent., France 2 per cent., America 2 per cent., Russia 1 per cent., and all others 1 per cent. The number of entries and clearances for 1900 and 1901 by nationality of vessels is shown as follows, entries and clearances being about equal:

Flag.	1900 Vessels.	1900 Tonnage.	1901 Vessels.	1901 Tonnage.
American	1,311	474,479	1,241	898,063
Austrian	44	77,542	71	111,583
Belgian	4	4,880	4	5,164
British	22,818	23,052,459	25,012	26,151,332
*Chinese shipping	26,420	7,544,496	14,694	6,089,654
Chinese junks	7,709	319,721	7,921	345,170
Corean	30	12,582	28	21,584
Danish	49	48,886	80	103,220
Dutch	20	32,158	77	93,852
French	978	664,987	1,208	733,041
German	3,527	4,032,147	6,641	7,542,829
Hawaiian	2	1,916		
Italian			10	334
Japanese	4,917	3,871,569	6,115	5,518,376
Portuguese	612	47,988	600	45,950
Russian	449	292,278	787	407,989
Siamese			2	616
Spanish	12	538	12	390
Swedish and Norwegian	324	328,528	339	345,649
Non-treaty Powers	4	98	2	1,872
Total	69,230	40,807,242	64,844	48,416,668

*Modern foreign built vessels owned by Chinamen and sailed under the Chinese flag.

Railways.—There were in 1902 three separate lines of railway in operation in China proper. Of these that known as the Chinese Imperial Railway, built by British capital, extends from Peking to Tientsin, 80 miles, thence to Tong-ku, 27 miles, and to Shan-hai-kwan, 147 miles distant, on the Manchurian border, 247 miles in all. The other lines are the Peking-Pao-ting-fu Railway, of which the main line is 88 miles long, with a branch 10 miles long; and the short Shanghai-Wusung line, which is only 12 miles long. The total length of these three lines is 364 miles. The two most important lines under construction are the Shantung Railway and the Peking-Hankow line. The Shantung line is being constructed by a German syndicate inland from Kiao-chau. At the beginning of 1902, 160 kilometres were reported as being completed, and it was expected that in three years the road would be completed as far as Chi-nan-fu, the capital of Shantung province. The first section—from Kiao-chau to Weihsien—was completed and opened for traffic on June 1, 1902. Work on the Peking-Hankow line, which is being built by the Belgian syndicate that already controls the Peking-Pao-ting-fu line, was progressing rapidly. The two lines are to be united and run in connection with one another. The section of the road destroyed during the Boxer uprising in 1900 has been rebuilt, and the line carried as far as Cheng-ting-fu, 262 kilometres distant from Peking. Early in the year it was expected that trains would be running from Hankow 220 kilometres northward to Hsin-yang by May (1902), and that 100 kilometres more of track would be laid to the north of Hsin-yang by the end of the year. Other important lines projected in China proper, but not begun, include a line to be built

by an American syndicate from Hankow to Canton, a British-built line from Shanghai to Nanking, and an American and British line to be run between Canton and Wu-chang. Contracts have been let for the construction by a French company of a line 291 miles in length to be run from Lao-kai to Yunnan-sen in south China, there to form a junction with the French Indo-Chinese railroad system (see INDO-CHINA, FRENCH). In Manchuria (*q.v.*) the Chinese Imperial Railway has an extension 193 miles in length from Shan-hai-kwan to Niuchwang, where it connects with the Russian-Chinese Eastern Railway. For other railways in Manchuria, see MANCHURIA.

HISTORY.

The Return of the Court.—The imperial court, which had been removed from Peking during the occupation by the Powers in 1900, had, by the end of 1901, reached in its return journey the city of Cheng-ting-fu—from which point it proceeded by rail to Peking, making a formal entrance on January 7, with great show and ceremony. It became manifest at once that the empress dowager had learned a lesson from the occurrences of the last two years, and that hereafter an entirely different policy from that formerly prevailing would be adopted by the court toward foreign diplomats. On January 22 the emperor gave an audience to the foreign diplomatic representatives, and received their credentials. More significant, however, was a state reception given by the empress dowager herself on January 28, when both the empress dowager and the emperor informally shook hands with the ministers. On the following day an entirely new departure in court policy was inaugurated in a formal state reception given by the empress dowager to the ladies of the foreign legations, at which Mrs. Conger, wife of the American minister, read a speech to which the empress dowager responded.

Internal Disturbances.—In March a rebellion of serious dimensions was reported near the boundary of southern China. The imperial troops had been repeatedly defeated, and the viceroy of Canton was compelled to call for reinforcements. On March 21 it was reported that the whole army of General Su, on the southern border had deserted to the rebels. On the following day the rebels captured the town and imperial arsenal of Kan-chau. By the first of April the entire province of Kiang-se was in revolt, thirty towns and villages had been captured and pillaged and 50,000 well armed troops were in the field, under the leadership of Dr. Sun-yat-sen, who was said to have studied at Harvard and graduated at a London medical school. The purpose of the rebels was declared to be the overthrow of the Manchu dynasty. For this purpose Dr. Sun and other educated Chinese had several years ago organized a secret political organization known as Hing Chung Wooy (Chinese Progressive Society). In May there was a renewal of the Boxer uprising, especially in Sechwan province. The missions and Christian converts were endangered, several Christian churches were sacked, and on August 6, in response to protests of the foreign ministers, the viceroy and other officials were suspended, but the new viceroy seemed unable to cope with the situation. On September 16 a Peking dispatch stated that between 300 and 1000 converts had been killed by the Boxers. A few days later they made an attack upon the capital, Cheng-tu-fu, but were repulsed, and fourteen leaders of the movement were captured and summarily executed. The uprisings it was said, were due apparently to the mingled hatred of foreigners and discontent at increased taxation.

Evacuation of Tientsin and Shanghai.—By the terms of the protocol of September 7, 1901, the Powers formally agreed that, by September 22 following, China having complied to their satisfaction with the conditions laid down by them, all the international troops should be withdrawn from Chi-li province, with the exception of certain localities where it was necessary to maintain small garrisons to ensure communication between Peking and the sea. Notwithstanding this agreement, however, it was not until August 15, 1902, that the evacuation actually took place. Again and again during these months of occupation, the Chinese government pleaded strongly for the restitution of the Chinese administration in the city and district of Tientsin and the restoration of the northern railways. There was nothing whatever in the protocol to justify this flagrant and open disregard of Chinese rights. Early in January, 1902, it was reported unofficially that the ministers had agreed in principle to accede to the Chinese request that the city be restored, but that the details of the restoration had not been worked out. After that weeks and months passed without any suggestion as to when the Powers proposed to fulfil their obligations. During February and March the British minister, Sir Ernest Satow, in reply to requests addressed to him by the anxious Chinese, replied several times that the British troops were ready to leave Tientsin the moment the other Powers agreed. Suddenly early in April an entirely new phase of the subject developed. The allied military commanders of the six Powers concerned in the occupation (Russia, Great Britain, Germany, France, Italy, and Japan) met on April 12, and, under the presidency of the British commander, looking at the question from a military point

of view, decided unanimously not to restore the city until one month after China had agreed to accept an entire new set of twenty-four conditions, none of which were provided for in the original protocol. These conditions were incorporated in one agreement which was sent to the foreign ministers at Peking for approval, and, with some modifications, was accepted about the middle of June by the representatives of the six Powers whose commanders had joined in the new proposal. The British minister expressed his disapproval of the conditions, but voted for them for the sake of harmony. In commenting on this new check to the long delayed fulfillment of the treaty obligations, the Peking correspondent of the London *Times* voiced the almost universal feeling of disgust and disappointment, and declared that the hope was freely expressed that the United States would insist on such a modification of the conditions as would lead to a speedy evacuation. He rather facetiously concluded: "If she cannot do so, it is suggested, in order to prevent misunderstanding in the future, that final protocols between China and foreign Powers should contain a clause that protocols are binding on China only." The *Times* correspondent's reference to the attitude of the United States was probably more than prophecy. The Chinese government did appeal to the United States to lend its influence toward securing the acceptance of the protocol's provisions, and Secretary of State Hay addressed notes concerning the matter to the home governments of the various Powers. On June 28 the ministers of the six Powers concerned in the provisional government met at Peking to discuss the situation, and M. Lessar, the Russian minister, formally announced Russia's withdrawal from the government and her willingness to return Tientsin to Chinese authority unconditionally. To this decision it was expected that France would give concurrence, and follow the example of Russia, thus leaving Great Britain, Germany, Italy, and Japan responsible. At this meeting the Japanese minister urged the modification of the conditions by the abandonment of the stipulation forbidding the viceroy to employ Chinese troops within thirty kilometres of Tientsin city, as likely to be the cause of great disorder and trouble in the future. On July 9 the representatives of the four Powers met again and formally agreed to the abandonment of this stipulation, together with some other concessions, and on July 17 the Chinese foreign office announced its acceptance of the terms. The previous unconditional withdrawal of Russia was looked upon as another stroke of policy on her part, as she had thus again placed herself in the position of a friend of China against the pretensions of Germany and Great Britain. The London *Spectator* heralded the settlement as another victory for the diplomacy of the United States, whose position, as in the Manchurian affair, had been practically adopted by the other Powers.

In October Germany sent notes to France and Great Britain with whom she jointly occupied Shanghai stipulating the conditions upon which she would agree to a withdrawal from the city. These were (1) that China should undertake not to part with any of her sovereign rights in the Yang-tse Valley; (2) that China should agree not to grant to any Power preferential rights opposed to the principle of the "open door;" (3) that the evacuation should be simultaneous on the part of the Powers; and (4) that Germany reserved the right to re-enter in case any other Power should again occupy the city. To these France and Great Britain offered no objection, Great Britain merely announcing that as to the first of the conditions the British government, not being a party to it, did not consider themselves affected by it one way or the other, but that their position as a champion of the "open door" policy was guarantee enough of their intentions. The city was evacuated by the allied troops on November 23, 1902.

The Indemnity.—The question of the amount and method of payment of the war indemnity continued throughout 1902 as in the previous year to be one of the most puzzling and serious with which the foreign diplomats and Chinese officials had to deal. Up to the end of the year no satisfactory settlement had been arrived at. The principal difficulty seemed to have its origin in the indefiniteness and ambiguity in the wording of the peace protocol of 1901. According to the protocol the 450,000,000 haikwan taels constituting the indemnity, represented a gold debt, calculated at the rate of the haikwan tael to the gold currency of each country according to a table appended to the protocol which placed its value in United States currency at 74.2 cents. The original sum set as the indemnity was to bear interest at the rate of 4 per cent. per annum, and it was expressly provided that the principal was to be paid up in 39 years, and that both capital and interest should be payable in gold, or "at the rates of exchange corresponding to the dates at which the different payments fell due." Since the acceptance of the protocol, however, the rapid and unlooked for fall in silver has resulted in a decrease in the value of the haikwan tael (59.4 cents on January 1, 1903) of about 25 per cent., so that the total amount of the indemnity has increased to about 563,000,000 haikwan taels, and China will be compelled to pay an annual sum in interest equivalent to 5 per cent. instead of 4 per cent., with a corresponding addition chargeable to the sinking fund. China

complained that such an increase was unjust. When the February installment of the indemnity fell due the International Bankers' Commission at Shanghai refused to accept it because it fell short of the amount which would have fallen due in accordance with the calculations of the commission at the prevailing rate of exchange. Before this matter could be acted upon the question of a scaling down of the total demands of the Powers was brought up and the United States presented a proposition for a pro rata reduction of the claims. This proposal, after considerable opposition on the part of the British minister, was adopted in June. In the same month Mr. Conger, the United States minister, signified the willingness of the United States to accept payment of the interest and principal of the indemnity without regard to the fluctuations in the price of silver. This view was opposed unanimously by the other ministers. At the same time a further suggestion, supported by Mr. Conger, allowing China to collect customs duties on a gold basis was favorably looked upon, it being recognized that it would be unjust to make the depreciation of silver operate against China both in payment of the indemnity and in the collection of revenues to meet it. No conclusion having been arrived at China refused to pay the July installment of the indemnity except at the rate of exchange prevailing at the time the protocol was signed. Thereupon the British minister offered a compromise provision agreeing that China should be allowed to pay the indemnity in silver until 1910. This was not looked upon with favor by the other ministers as being a practical admission of China's intention. The matter dragged along without further agreement until November 12, when the United States, having already obtained assurances of the support of Great Britain and Japan, submitted to the Powers a proposition for the submission of the question of the payment to the Hague Tribunal. To this Russia and France at once agreed, and Germany's assent was given late in December. Just at the close of the year the announcement was made at Peking that China would be willing to acknowledge her liability to make the payments due on a gold basis if some sort of relief were granted during the present silver crisis.

The Anglo-Chinese Treaty.—Toward the close of July, 1902, a treaty was negotiated at Wu-chang between the two Yang-tse viceroys, as representatives of the Chinese government, and Sir James Mackay and two British tariff commissioners, and was signed, after some delays, on September 5. The treaty consisted of 13 articles, which constitute by far the most important commercial agreement that China has ever made with a foreign power. The first seven articles dealt with the registration of trade-marks, the establishment of a system of bonded warehouses, the navigation of the Yang-tse and Canton Rivers, the equalization of the dues on junks and steamers, facilities for drawbacks, the establishment of a national currency, and the liability of Chinese shareholders in joint stock companies. Article 8 provided for the abolition of the *likin*, the internal customs tax. Article 9 agreed that within one year China shall revise her existing mining regulations on the model of the Indian mining regulations in order that no further impediment may be offered to the investment of foreign capital. Article 10 provided new regulations for the navigation of inland waters, which has never been a matter of treaty right, and further, for facilitating the erection of wharves, jetties and warehouses. Article 11 provided for the appointment of a joint commission to settle disputes arising under the treaty, and the last two articles amounted to an expression of Great Britain's willingness to support China's policy of reform and a promise to relinquish extra territorial rights as soon as the reform in the judicial system and the establishment of an effective administration shall warrant her in so doing. Article 8, providing for the most radical and far-reaching reform in the Chinese commercial system yet undertaken, is the keystone of the whole treaty. The *likin* tax, established shortly after the Tai-ping rebellion, has long constituted the greatest barrier to the opening up of China to the trade of the outside world. It is an arbitrary customs charge, levied at intervals along the inland trade routes, and by the frequency of its enforcement has amounted to an extortion that has practically rendered the development of internal trade impossible. By this section of the Mackay treaty it is provided, that in return for a surtax equivalent to one and one-half times the duty leviable in accordance with the protocol of 1901, which duty slightly exceeded 4 per cent. *ad valorem*, China shall abolish all *likin* dues, internal customs stations, and barriers, and every form of taxation on British goods, the article to become effective in January, 1904, subject to other Powers entering into similar engagements. The consent of the Powers, however, is not to be dependent upon any separate exclusive concessions by China. It is further agreed that four new treaty ports shall be opened—Chang-sha, Ngan-king, Wan-hsien, and Wai-chau. China is to be allowed to retain the right to tax salt, opium, and native produce for native consumption, but the collection of these charges will be taken out of the hands of the local and provincial authorities and placed, hereafter, in charge of the officials of Sir Robert Hart's service. To China was conceded the right to recast the existing export dues

at six months' notice, providing duties not exceeding 5 per cent. *ad valorem*, a surtax of 2½ per cent. being leviable in lieu of all internal taxation. The treaty was generally conceded to be a striking proof of the real desire of the Chinese imperial government and of the Yang-tse viceroys in particular, to adopt radical measures of fiscal reform and establish a system of foreign trade on a basis similar to that recognized by other civilized nations.

The Control of the Northern Railways.—An agreement was signed at Peking on April 29, 1902, by Sir Ernest Satow, the British minister, and Hu Yu-fen and Yuan Shi-Kai, providing for the restoration of the Peking-Shan-hai-kwan Railway to Chinese civil administration, and stipulating the regulations which should govern its control and extension in the future. The agreement was designed principally for the purpose of enabling the Chinese government itself to control and keep in its own hands all the railway lines and extensions in the metropolitan province. On May 20 China formally submitted the agreement to the foreign ministers and asked their consent. The terms of the agreement provided for the appointment of a commission of one British military official as director and two assistant directors, one German and one Japanese, and stipulated among other things that no foreign Power shall construct or control any railway line within 80 miles of the Peking-Shan-hai-kwan system. To these clauses both Belgium and Russia lodged objections. The protest of Belgium rested on an alleged promise of Li Hung Chang made, it was said, in 1901, allowing the Belgium syndicate controlling the Peking-Hankow line to construct and control the Peking-Pao-ting-fu extension. The Russian protest, lodged by M. Lessar, the Russian minister, objected to the stipulation which would have the effect of preventing Russia from controlling the line northward from Peking to the Great Wall on the ground that prior secret agreements entered into between China and Russia would be thereby violated. The other Powers, with these two exceptions, accepted the agreement, and an amicable adjustment of the differences having been arrived at by the abandonment of the plan for a military directorship, the British-controlled section of the Northern Railway was restored to Chinese authorities on September 29 and the Russian Kin-chow-Niu-chwang section on October 8. The agreement stood practically as originally adopted in April, and a difficulty that promised to be the source of considerable trouble was thereby overcome.

Commercial and Industrial Affairs.—In June, 1902, a valuable mining concession in Yunnan province was granted to an Anglo-French syndicate. The concession was for a term of 60 years, and comprised 85 miles located on rich mineral lands bearing deposits of coal, copper, nickel, tin, and quicksilver, and covering in extent almost one-third of the entire province. The mines are all near the course of the projected railway from Indo-China to the city of Yunnan. A royalty of 5 per cent. is to be paid to the Chinese government, which is to receive also 25 per cent. of the net profits. An additional 10 per cent. of the net profits is payable to the provincial government. It was expected that two rival French and English syndicates, each of which is seeking similar concessions in Sechwan province, would effect a union of interests in the same manner that the Yunnan syndicate has done. In July an edict was issued providing for the completion of the Canton-Hankow Railway, and authorizing the issue of $40,000,000 in gold bonds. It was stated that the completed railway would comprise 700 miles of trunk line and 200 miles of branch lines.

The New Tariff.—During 1902 commissioners from Germany, Great Britain, Japan, and the United States negotiated with Chinese officials a new tariff which became effective on October 31. The negotiations had in view the compliance with the protocol of September 7, 1901, which provided that the tariff on imports should be increased to an effective 5 per cent. and that all *ad valorem* duties should be converted, as far as feasible and with the least possible delay, into specific duties. The basis upon which this conversion was to be effected was to be the average landing value of merchandise for the years 1897, 1898, and 1899—i. e., the market price less the amount of existing import duty and incidental expenses. Upon this basis the tariff was arranged, it being provided that all imports not enumerated in the schedules should pay duty at the rate of 5 per cent. *ad valorem*. In signing the draft of the tariff the United States, German, British, and Japanese negotiators submitted the following accompanying note:

"We, the special commissioners of Germany, Great Britain, Japan, and the United States of America, in affixing our signatures to the new Chinese specific tariff, wish it to be clearly understood, in view of the fact that the special commissioners of other countries are only empowered to sign the tariff subject to reference to their respective governments and that other powers have not appointed representatives to sign it, that no alterations can hereafter be made in the said tariff or rules appended thereto by agreement between China and any other power, unless the consent of our governments to such alterations shall first have been obtained."

Other Political Matters.—New Chinese ministers to Russia, France, Italy, and the

United States were appointed. The new American minister was Sir Liang Chen, secretary to the British coronation embassy. The appointments seemed to indicate that the empress dowager continued to regard the diplomatic service as of little importance since none of the new ministers held high rank or had served in high official positions. On the other hand, it was said that they all were men of progressive views and accordingly were disliked by the Chinese official class. In February, 1902, it appeared that the British government had definitely abandoned the idea of fortifying Wei-hai-wei. A civilian official, Mr. Stewart Lockhart, was appointed administrator and the territory was placed under the control of the British colonial office. It will be remembered that immediately after the Germans secured Kiao-Chau and the Russians Port Arthur, Great Britain obtained Wei-hai-wei in order to continue the traditional balance of power in northern China. It was proved, however, that the territory is strategically unfit for the purposes of a great naval or military station. It will probably be used by the British as a place for rifle practice and, it is thought, may in time become important commercially as a distributing centre. In August it was announced that Charles Denby, Jr., son of the former United States minister to China, had been appointed chief foreign adviser to Yuan-shi-kai, the viceroy of Chi-li province, which contains both Peking and Tientsin. As Yuan is considered the real successor of Li Hung Chang, this appointment was thought to mean an increased influence of the United States in Chinese affairs.

CHOLERA. See VITAL STATISTICS.

CHRISTIAN AND MISSIONARY ALLIANCE, established in 1887 for the "wide diffusion of the gospel and the work of evangelization." It conducts missions in both foreign and home fields. Its work in the United States is carried on through subordinate organizations. There is also an alliance in Canada. The total receipts for the year 1901-02 aggregated $185,162, not including some $40,000 received from the Chinese government in settlement of the indemnity claim for losses during the Boxer insurrection of 1900. A notable advance in the number of foreign missionaries commissioned by the society was made, 70 having been sent out, of whom 32 were new missionaries. Of these workers, 18 went to China and an equal number to India, 21 to Africa, 6 to South America and the West Indies, 2 to Palestine, 1 to Japan, 2 to Anam, and 2 to the Philippines. New fields were added to the territory of the alliance by the establishment of missions in Porto Rico, Anam, and the Philippines. The Christian and Missionary Alliance maintains a missionary training institute at Nyack, N. Y., which in 1902 had a student enrollment of 188. The customary annual conventions were held. A sum exceeding $60,000 was subscribed at the meeting in New York City in October. President, Rev. A. B. Simpson; general secretary, Rev. A. E. Funk. Headquarters, 692 Eighth Avenue, New York City.

CHRISTIAN CATHOLICS (Dowie), a sect, whose headquarters are in Chicago, composed of the followers of John Alexander Dowie, the apostle of "divine healing." Information as to the progress of the sect is declined, and there are no statistics later than those of 1900, which credited the body with 50 churches, 55 ministers, and 40,000 members. Toward the close of 1901, Mr. Dowie became the defendant in a law suit with his brother-in-law, Mr. Samuel Stevenson, over the recovery of property of which Dowie had acquired possession, the charge asserted, through "undue influence." Judge Murray F. Tuley, in the circuit court of Cook County, Ill., in January, 1902, rendered judgment in favor of Stevenson and appointed a receiver for the Zion lace industries, the concern involved, but the case was finally settled out of court. The court in handing down decision, denounced Dowie and his methods, an arraignment that has been termed the most severe indictment hitherto brought against Zion. Considerable attention was attracted to the Christian Catholic Church by the announcement of the accession of Mr. and Mrs. Booth-Clibborn and Percy Clibborn, of the Salvation Army, who had been in charge of the army work in Italy, Holland, France, and Switzerland. In the fall of 1902 an order was issued by the Cook County probate court demanding the return of $50,000 to the heirs of the estate of a New Zealander who had become one of Dowie's adherents. This suit, together with the filing of others for small debts, gave rise to doubts of Dowie's solvency. An investigating committee, representing several of the creditors, was appointed, which, after revising carefully Dowie's estimate of his property, reported a net value over debts of more than three-quarters of a million dollars. Still Mr. Dowie thought it necessary to issue a wide-spread appeal (October 8, 1902) to Zion in all lands for small loans at 6 per cent., the temporary embarrassment of Zion's finances being due to "general financial stringency" throughout the United States.

CHRISTIAN ENDEAVOR, UNITED SOCIETY OF, an interdenominational and international order, founded at Portland, Me., in 1881, to serve as a training school

for young people in the duties of church membership. There are now over 63,000 societies with about 4,000,000 members, including over 16,000 junior societies, made up of children under fourteen years of age, and 1500 intermediate societies of boys and girls between the ages of fourteen and eighteen. Some 2000 new societies and 100,000 members were added during 1902. There are 43,822 societies in the United States. National unions have been formed in all of the principal countries of the world; and Christian Endeavor constitutions are now issued in nearly every language. London, with more than 700 societies, is the first Christian Endeavor city of the world, though Philadelphia and Chicago are close rivals. The most notable event of 1902 was the European tour of the president, Rev. Francis E. Clark, D. D., who, in eight months, represented Christian Endeavor in twenty countries and everywhere found the outlook most encouraging. National unions were organized, and arrangements made for the translation of literature and the employment of field secretaries when needed. The next international convention will be held July 9-13, 1903, in Denver, Col. The general secretary of the society, John Willis Baer, has resigned to become assistant secretary of the Presbyterian Board of Home Missions. President, Rev. Francis E. Clark, D. D.; treasurer, William Shaw; field secretary, Rev. Clarence E. Eberman. Headquarters, Tremont Temple, Boston, Mass.

CHRISTIANS, a denomination of the United States, not to be confounded with that known as Disciples of Christ, originated early in the nineteenth century. It allows latitude of theological views and asserts the importance of fellowship of all followers of Christ, claiming the name Christians "not as a sect name; but fraternally, as a name of union." The two bodies called Christian Connection and Christian Church (South), which became separated in 1854 through disagreement on the slavery question, are now in close affiliation. According to the latest statistics, the denomination has 112,395 members, 1239 ministers, and 1448 churches, with property valued at $2,385,000. There was no change in the number of educational institutions during 1902; but Palmer University, at Muncie, Ind., is being established, toward the endowment of which Hon. F. A. Palmer promised $100,000 on condition that the friends of the university raise an equal amount. He also contributed $100,000 to Palmer Institute (Starkey Seminary) at Lakemont, N. Y., and, conditionally, to Palmer College, Le Grand, Ia., $30,000; to Union Christian College, Merom, Ind., $30,000; to Elon College, North Carolina, $20,000. The Christians completed, with the year 1902, one of the most prosperous quadrenniums in their history. The session of the American Christian convention, which meets every four years, was held in October, at Norfolk, Va. This representative assembly, established in its present form in 1866, has charge of the general educational, missionary, and other interests of the denomination. The *Herald of Gospel Liberty*, published in Dayton, O., is the official organ of the denomination; it is owned and its editor is elected by the general body. There are also several smaller papers issued by individuals or sectional organizations.

CHRISTIAN SCIENTISTS, the members of a Christian denomination founded upon the interpretation of the Scriptures contained in *Science and Health with Key to the Scriptures*, by Mrs. Mary Baker G. Eddy. The discovery of Christian Science dates from 1866; the publication of its text-book from 1875; and the founding of the Church of Christ, Scientist, from 1879. The First Church of Christ, Scientist, in Boston, Mass., of which Mrs. Eddy is pastor emeritus, is the "Mother Church" of the denomination, all others being branch churches. In January, 1902, there were 665 branch churches and societies (the latter not yet organized as churches); in January, 1903, there were 722, showing a gain of 57 during the year. In each church and society, two "readers," generally a man and a woman, conduct the services, there being a total of 1410 throughout the body. In June, 1902, the membership of the First Church of Christ, Scientist, in Boston, was 24,278, a gain of 2784 members during the year then ended. The *Christian Science Sentinel* (weekly), the *Christian Science Journal* (monthly), and *The Christian Science Quarterly* are published under the auspices of the church. The annual communion service, held in Boston, draws thousands of Christian Scientists from many parts of the world. A message from the pastor emeritus is read at this service, devoted to an exposition of the teachings of Christian Science as applied to the special needs of the hour. At the annual business meeting of the "Mother Church" in June, 1902, it was voted unanimously to contribute any portion of $2,000,000 that might be necessary to provide an auditorium in Boston, seating four or five thousand persons. Considerable attention was attracted to the resignation of several prominent "readers" of New York City, in conformity with a by-law adopted by the "Mother Church," which was recommended by Mrs. Eddy in the official organ of the Christian Scientists partly as follows: "The Mother Church by-law relative to a three-years' term for church readers was entitled to and has received profound

attention. Rotation in office promotes wisdom, quiets mad ambition, satisfies justice, and crowns honest endeavors." Later in the year, the advice of Mrs. Eddy that "until public thought becomes better acquainted with Christian Science, the Christian Scientists shall decline to doctor infectious or contagious diseases," attained much greater prominence, the decree being accepted by the opponents of Christian Science as an inherent contradiction, they claiming that the message essentially recognized the existence of disease and moreover admitted two classes of diseases. It was believed that the advice was prompted by the notoriety gained by the Quimby case in White Plains, N. Y., where a prominent "healer" was declared by the coroner to be guilty of manslaughter in connection with the death of a child. In Philadelphia, the application of a Christian Science Church for a charter was refused on the ground that the institution seeking incorporation was for business, not for religious purposes, and that the court had no power to grant a charter; and in a supplemental opinion, the reasons for the court's decision were set forth at greater length, the court, after reviewing Mrs. Eddy's *Science and Health,* declaring that the practice of Christian Scientists is the practice of the art of healing, and that "when persons who make a business of practicing the art of healing with or without medicine are not regularly registered physicians, they violate the law which was intended to prevent the practice of medicine by non-qualified persons." Various opinions were elicited by the decision; a prominent periodical says that "judging from newspaper comment on the subject, it would appear that the decision of the court is generally held to be unfair." Christian Science in Germany, during the early part of 1902, was a subject of discussion in the Reichstag and Emperor William issued notification that all persons connected with that faith would be excluded from the imperial court; and permission to use public halls was withdrawn by the municipal authorities of Berlin. By adherents of Christian Science, their unpopularity in Germany was attributed largely to "the attempts that have been made to induce the Emperor to confound it with 'faith cure,' 'spiritualism,' and 'obscurantism' of various forms;" the imperial secretary of state said in the Reichstag, "I earnestly warn against using the power of the state against such things." Later in 1902 the agitation had subsided and it was reported that a new Christian Scientist Church had been opened in Berlin.

CHRISTMAS, WALTER, attained considerable notoriety in 1902, in regard to allegations of attempted bribery in the sale of the Danish West Indies (*q.v.*).

CHROMIC IRON ORE. See MINERAL PRODUCTION.

CHURCH OF CHRIST, SCIENTIST. See CHRISTIAN SCIENTISTS.

CIST, HENRY MARTYN, an American soldier and lawyer, died in Rome, Italy, December 17, 1902. He was born in Cincinnati, O., February 20, 1839, and after graduating in 1858 from Farmer's College, studied law. In April, 1861, he enlisited as a private of the Sixth Ohio infantry and served throughout the Civil War, leaving the service in 1866 with the brevet of brigadier-general of volunteers for his services at the battle of Stone River and in the campaign under General Rosecrans that terminated in the battle of Chickamauga. He resumed his legal practice in Cincinnati in 1866, and in 1869 became an officer of the Society of the Army of the Cumberland. He was an earnest advocate of the Chickamauga Park project. Besides several magazine articles on Civil War topics he edited a great portion of the *Reports of the Society of the Army of the Cumberland* (1868-85) and published *The Army of the Cumberland,* in the series "Campaigns of the Civil War" (1882); and a *Life of General George H. Thomas.*

CIVIC FEDERATION, NATIONAL. At the conference of employers and labor leaders held December 17, 1901, under the auspices of the National Civic Federation, a permanent board to settle differences between labor and capital was appointed. Its composition was as follows:

On Behalf of the Public.—Grover Cleveland, Cornelius N. Bliss, Charles Francis Adams, Archbishop Ireland, Bishop Henry C. Potter, Charles W. Eliot, president of Harvard University; Franklin MacVeagh, James H. Eckles, John J. McCook, John G. Milburn, Charles J. Bonaparte, Oscar S. Straus, Ralph M. Easley.

Representatives of Organized Labor.—Samuel Gompers, president of American Federation of Labor; John Mitchell, president United Mine Workers; F. P. Sargent, grand master of Brotherhood of Locomotive Firemen; T. J. Schaffer, president of Amalgamated Association of Iron and Steel Workers; James Duncan, secretary of Granite Cutters' Association; Daniel J. Keefe, president of International Association of Longshoremen; Martin Fox, president of National Iron Molders' Union; James M. Lynch, president of International Typographical Union; Edward E. Clark, grand conductor Brotherhood of Railroad Conductors; Henry White, secretary of Garment Workers of America; Walter MacArthur, editor of Coast Seaman's *Journal;* James O'Connell, president International Association of Machinists.

Representatives of Employers.—Senator Marcus A. Hanna, Charles M. Schwab, president Steel Corporation; S. R. Calloway, president American Locomotive Works; Charles Moore, president National Tool Company; J. D. Rockefeller, Jr.; H. H. Vreeland, president Metropolitan Street Railway Company; Lewis Nixon, Crescent Shipyard, N. J.; James A. Chambers, president American Glass Company; William H. Pfohler, president National Association Stove Manufacturers; E. P. Ripley, president Atchison, Topeka and Santa Fe Railroad; Marcus M. Marks, president National Association Clothing Manufacturers; J. Kruttschnitt, president Southern Pacific Railroad Company.

The purpose of the board is to conciliate, to mediate, and only in rare cases, when requested by both sides, to arbitrate between capital and labor. The first dispute brought before the board was the threatened strike of the clothing cutters, involving 40,000 workmen and large capital. This strike was announced to go into effect January 1, 1902. On the board were the chief representatives of both the cutters and the manufacturers, and the difficulty was quickly adjusted by them. The next matter that claimed the attention of the board was the national cash register strike, which had then been running for nine months. It was speedily settled by the efforts of the board. Next it was asked to mediate in the union iron workers' strike in San Francisco. This strike had been on for six months and there seemed no prospects of a settlement. Owing to the good offices of the committee, the trouble was satisfactorily settled. The threatened strike of the paper workers was successfully adjusted. In the Boston freight handlers' strike the mayor of Boston and the Massachusetts Board of Arbitration invited the Civic Federation to attempt a settlement. A satisfactory settlement was reached for which the Federation deserves a large measure of credit. The trouble in the anthracite coal fields was early brought to the attention of the board, and the leading coal operators and the labor leaders were brought together in conference, but without result. The powers of the board of conciliation are purely voluntary. It has no legal status and does not assume authority for either capital or labor. Only when asked by both sides will it act as arbitrator.

A convention under the auspices of the industrial department of the National Civic Federation was held in New York City from December 8 to 10. At the first session Mr. G. C. Sykes, secretary of the Street Railway Commission of Chicago, made a strong argument in favor of compulsory arbitration in cases of corporations controlling public utilities. Mr. Sykes referred to the labor clauses inserted in the franchise grants by European and Canadian municipalities and asserted that, if the city managed its own street railway system, the employees would be treated in such a manner as to prevent strikes, and, that the railway company operating under a franchise from the city should be required to treat its employees in like manner. Mr. Charles Francis Adams followed with a scheme for the formation of a tribunal to investigate and report on great strikes as soon as they occur. The tribunal should be dissolved as soon as the strike is settled, and a new one appointed when new troubles should arise. Mr. Adams thinks this will insure an important tribunal, acceptable to both parties, because it cannot become permanently unpopular with either. At the second day's session Professor John R. Commons read an illuminating paper, showing that trade unions do limit output and restrict the use of machinery in some instances in order to keep members employed, but that this policy is usually followed only when the speeding of work is clearly unreasonable and means exhaustion, bad work, and loss of wages and the dismissal of older workmen. The discussion brought out strong protests from the labor union men against introducing piece work into shops where day work now obtains. They asserted that American laborers are rushed now and are discharged as too old at a much earlier age than is the case elsewhere. The employers tried without success to maintain that piece-work does not result in decreasing the piece rate as the product per man increases. Dr. W. S. Rainsford, a hearty friend of labor unions, showed that the unions limit the number of apprentices and thus restrict the education and opportunities of American boys. The last day of the convention was given to a discussion of the benefits of joint agreements between labor and capital regulating wages and conditions of work. Many employers testified that labor organizations kept their agreements with fidelity, and Senator Hanna agreed with Mr. John Graham Brooks that incorporation is not necessary to make unions keep their contracts, and that unions at present should not be forced to incorporate, thus exposing themselves to endless litigation. Senator Hanna and President Gompers, of the American Federation of Labor, were agreed that compulsory arbitration should never be resorted to. At that very time thousands were suffering from the dearth of coal due to the coal strike, so the assertion of the right of capital and labor to fight as long and as often as it seems good to them, did not awaken enthusiasm among the people at large. For Taxation Department of the National Civic Federation, see TAXATION.

CIVIL SERVICE REFORM. Several important orders affecting the Civil Service were made by the President during the past fiscal year. One of these dated November 19, 1901, revoked a previous order of President McKinley so as to restore to the classified service various offices in the War Department. By an order of December 24, the President directed that in making appointments officers should confine themselves more closely to the list of eligibles. At the same time he directed that persons illegally vested with office should be denied compensation pending their dismissal and that evasion of the civil service examinations should be diminished by a restriction of the system of transfers from one department to another. By an order of May 29, 1902, the President directed that all employees and officers in the classified service should be arranged in six classes on the basis of the amount of salary received. From this classification laborers and persons appointed to office with the consent of the Senate are excluded. The order directed that thereafter no laborer appointed without examination should be assigned to work of the same grade as that performed by classified employees. The purpose of the order was declared to be to break up the practice of appointing persons as "laborers" without examination and then assigning them to do clerical work. An order of July 5 directed that no recommendation for the promotion of any employee should be considered unless made by the officer under whose supervision such employee is serving. Resort to outside influence to secure a promotion is made a sufficient cause for debarring the applicant, while its repetition is punishable by dismissal from the service. By an important order of May 29, the President interpreted the meaning of the term "just cause" in the provision of a former rule, which forbids removal except for just cause, and in regard to the construction of which misunderstandings had arisen. He held that the term meant any cause other than one merely political or religious which will promote the efficiency of the service. Various amendments of lesser importance were made to the civil service rules. The report of the United States Civil Service Commission for the year ending June 30, 1902, expresses gratification at the substantial progress made in the competitive system during the year and at the excellent manner in which the civil service law and rules have been generally observed throughout the various branches of the government. Since June 30, 1901, there have been added to the competitive system, either by executive order or act of Congress, the employees of the rural free-delivery service; a considerable portion of the field services of the War Department; the additional employees made necessary by the war with Spain; and the clerks and employees of the Census Bureau, a total of 12,456 employees. During the year 62,029 persons were examined for admission to the civil service, of whom 41,039 passed and 14,999 received appointments. Compared with the previous year this shows an increase of 13,331 in the number examined, an increase of 7300 in the number that passed, and an increase of 2987 in the number appointed.

In addition to the extensions enumerated above, the civil service rules were extended to Porto Rico and the Philippines. In Porto Rico a newly organized board of examiners was established and the majority of federal positions were placed in the classified service. In the Philippines practically all official positions are now included within the classified service with the exception of teachers, and it is understood that these will be made subject to classification at an early date. The commission made an earnest recommendation to Congress that a law be enacted furnishing facilities for determining the comparative qualifications of applicants for the consular service by means of open, competitive, non-partisan examinations. It also suggests that Congress provide that the further admission to the classified service be based upon the condition that appointees shall provide against their own superannuation or other disability by adequate annuity insurance, the premiums to be deducted from their salaries. To this end the commission recommends the appointment of a committee of experts to aid the President in preparing rules for the purpose. The twenty-second annual meeting of the National Civil Service Reform League was held at Philadelphia, December 11 and 12. In spite of inclement weather the meeting was one of the best ever held. The absence of Col. John W. Ela, whose death occurred recently, was regretted. He had been one of the leading members of the league and an able advocate of civil service reform. The council of which Mr. C. J. Bonaparte was chairman made a report to the league on the condition and progress of the civil service reform movement for the year, paying a high tribute to President Roosevelt for the practical enforcement of the civil service law and for the general elevation of the moral tone of the public service. The reorganization of the Civil Service Commission, the extension of the rules to the rural free-delivery service, and the partial introduction of the merit system into the civil service of the District of Columbia, were acts of the President which received the heartiest approval of the council. The council reported that it had labored assiduously to prevent legislation hostile to civil service reform and to enlighten and guide public opinion by the distribution of appropriate literature. Addresses before the meet-

ing of the league were made by President D. C. Gilman, Prof. L. S. Rowe, Hon. Harry A. Garfield, Hon. Carl Schurz, Elliot H. Goodwin, and others. The league passed several resolutions urging the extension of the merit system to the rest of the municipal service of the District of Columbia; to the consular service and Indian agencies, and to those cities of the country not now under civil service rules. It also expressed regret at the defects in the administration of the civil service system in New York City, and urged all Civil and Spanish War veterans to oppose the "veteran preference" bills. An interesting feature of the annual meeting was the report of the work being done in the insular territories of the United States toward the establishment of the merit system.

The officers elected for the ensuing year are as follows:

President, Daniel C. Gilman, Baltimore; vice-presidents, Charles Francis Adams, Boston; Joseph H. Choate, New York; Grover Cleveland, Princeton; Charles W. Eliot, Cambridge; Harry A. Garfield, Cleveland; Arthur T. Hadley, New Haven; Henry Charles Lea, Philadelphia; Seth Low, New York; Franklin MacVeagh, Chicago; George A. Pope, Baltimore; Henry C. Potter, D.D., New York; P. J. Ryan, D.D., Philadelphia.

The movement in the direction of civil service reform during the year was quite general and encouraging. In Congress an increasing interest was shown by the appropriation of the amount asked for by the Civil Service Commission without a dissenting vote and by the favorable report from the Senate Committee on Foreign Relations in favor of a salaried classification of the consular service and the assignment of positions by the President in accordance with the compensation. Among the States notable progress was made in California and Illinois. In the former State a proposition to amend the constitution so as to provide a civil service system was adopted by the assembly, and in the latter a commission was appointed by the governor to prepare a civil service law for the State. Movements were set on foot to introduce the merit system in several municipalities, notably Los Angeles and Detroit. A further evidence of increased popular interest was shown in the activity of the women's auxiliary clubs in behalf of the advancement of reform.

CLARK, Edward, architect of the capitol at Washington, died January, 6, 1902, at Washington. He was born in Philadelphia in 1824, and received a common school education, afterward studying architecture under Thomas U. Walter, the architect of the extension of the national capitol, whom he succeeded in 1865. He was engaged on many commissions for government work, among which were the construction of the Congressional Library and the completion of the Washington Monument. He was a fellow of the Clarendon Historical Society of Edinburgh, and a member of the American Institute of Architects.

CLARK UNIVERSITY, Worcester, Mass., opened in 1889. President, G. Stanley Hall, Ph.D. In 1902 the teaching force numbered 13 and the students 50. There were about 23,000 volumes in the library. The university has aimed to supplement the work of other institutions, particularly by way of highly specialized research in biology, psychology, physics, and pedagogy. The scholarship both of faculty and of students ranks very high, but in numbers the student body has always been exceedingly small. A change was begun in the strictly university character of the institution in 1902, when it was decided to establish a collegiate department. The public inauguration of this work took place in October of that year, when Hon. Carroll D. Wright was formally installed as head of the new department. It was stated that his active duties would not begin until after his retirement from his position as United States commissioner of labor. See Psychology, Experimental (paragraph Clark University).

CLARKE, Sir Andrew, agent-general for Victoria, Australia, died March 29, 1902. He was born July 27, 1824, in Hampshire, England, and was educated at King's School, Canterbury, and at Woolwich. In 1844 he entered the Royal Engineers and served in the New Zealand campaign of 1867-68, for which he received a medal. In 1851 he was a member of the legislative council of Tasmania, and two years later was appointed surveyor-general of Victoria. He became a member of the Australian Parliament and minister of lands, and later went on a special mission to the west coast of Africa. As director of works of the navy from 1864 to 1873, he designed and constructed important extensions in some of the largest naval arsenals of the British Empire. From that time he held many public offices, including the governorship of the Straits Settlements, minister of public works in India, and was inspector-general of fortifications. His decorations were C.B., G.C.M.G., and C.I.E. He was the author of several works on engineering.

CLARKE, Sir Campbell, an English journalist, died August 26, 1902, at Oldlands, England. He was born October 3, 1835, was educated at the University of Bonn and was a librarian in the British Museum from 1852 to 1870. After traveling in Turkey and Greece as a special newspaper correspondent (1870-72), he

became Paris correspondent of the London *Daily Telegraph*. He was knighted in 1897. He was made an officer of the Legion of Honor and received a number of other honorary decorations. In addition to his journalistic writing, he adapted a number of plays into English and wrote several songs.

CLAY. See MINERAL PRODUCTION.

COAL. During the year 1901 the position of the United States as the chief coal producing nation of the world was firmly established. The output of bituminous coal was 225,826,849 short tons and of anthracite 67,471,667 short tons, making a total of 293,298,516 tons, an increase of 23,615,689 tons, or 8.8 per cent. for the year. This total represented about one-third of the world's product in 1901, and exceeded the output of Great Britain, the nearest competitor, by 47,965,938 tons. Since 1880 the coal mining industry of the United States has made unprecedented progress; the output of anthracite coal increased about 240 per cent. during this period, while the bituminous industry increased more than 500 per cent. The production in 1901 was distributed over 28 States and Territories, of which those within the Appalachian region contributed 210,743,774 tons, or about three-fourths of the total for the entire country. Nearly all of the States reported an increase, and in many the yield was the largest ever recorded.

PRODUCTION OF COAL IN 1901.

STATES.	Short Tons.	Increase, 1901. Per Cent.	Value.	Value Per Ton.
ANTHRACITE.				
Pennsylvania	67,471,667	17.6	$112,504,020	$1.67
BITUMINOUS.				
Alabama	9,099,052	8.4	10,000,892	1.10
Arkansas	1,816,136	25.4	2,068,613	1.14
California	151,079	12.0*	394,106	2.60
Colorado	5,700,015	8.7	6,441,891	1.13
Georgia and North Carolina	354,825	6.4	426,685	1.20
Illinois	27,331,652	6.0	28,163,937	1.03
Indiana	6,918,225	6.6	7,017,143	1.01
Indian Territory	2,421,781	26.0	3,915,268	1.62
Iowa	5,617,499	7.9	7,822,805	1.39
Kansas	4,900,528	9.7	5,991,599	1.22
Kentucky	5,469,986	2.6	5,213,076	0.95
Maryland	5,113,127	27.0	5,046,491	0.99
Michigan	1,241,241	46.1	1,753,064	1.41
Missouri	3,802,088	7.4	4,707,164	1.24
Montana	1,396,081	15.9*	2,009,316	1.44
New Mexico	1,086,546	16.3*	1,546,652	1.42
North Dakota	166,601	28.3	214,151	1.29
Ohio	20,943,807	10.3	20,928,158	1.00
Oregon	69,011	17.2	173,646	2.52
Pennsylvania	82,305,946	3.0	81,397,586	0.99
Tennessee	3,633,290	3.5	4,067,389	1.12
Texas	1,107,953	14.4	1,907,024	1.72
Utah	1,322,614	15.3	1,666,082	1.26
Virginia	2,725,873	13.8	2,353,989	0.86
Washington	2,578,217	4.2	4,271,076	1.66
West Virginia	24,068,402	6.3	20,848,184	0.87
Wyoming	4,485,374	11.7	6,060,462	1.35
Total	293,298,516	8.8	$348,910,469	.....

* Decrease.

The production of the United States in 1902 showed little change from the total of the preceding year. The strike on the part of the Pennsylvania anthracite miners, which lasted from the middle of May until late in October, curtailed the output in this region about 20,000,000 tons, but this shortage was made up by the increased yield in the bituminous fields of Pennsylvania and other States. It is estimated by *The Engineering and Mining Journal* that the total production of the United States was about 293,000,000 short tons, of which total 45,000,000 tons were anthracite and 248,000,000 tons bituminous coal. In spite of the labor troubles, Pennsylvania continued to lead the States in the amount and value of its output, contributing about 140,000,000 tons in all, or 10,000,000 tons less than in 1901. In western Pennsylvania, which supplies much of the coal for metallurgical purposes, operations were conducted on a very large scale; the increased yield of these mines for 1902 ranged from 10 to 30 per cent. The shipments of both anthracite and bituminous coal from Pennsylvania mines are controlled by the principal coal-carrying railroads under a "community of interest" plan, by which scheduled prices have been established in the large markets, freight rates increased, and the territory divided among the railroads in such a way as to avoid competition. Illinois continued to hold

second place among the States, its output being considerably larger than that for 1901. Operations in this field, as well as in Ohio, which ranked third in production, were unhampered by labor troubles, and the coal found a ready market owing to the short supplies from Pennsylvania and West Virginia. A reduced output was reported in the latter State as many of the mines in the Flat Top, Fairmount, Kanawha, and Pocahontas fields were closed during a part of the year by labor troubles. Among the other important coal mining States, increases were recorded in Alabama, Indiana, Colorado, Iowa, Kansas, Arkansas, and Indian Territory. The coal industry in Texas and California suffered from competition with fuel oil. The imports of anthracite to the United States in 1902 were 73,006 tons and of bituminous coal 2,478,375 tons; the exports of anthracite were 907,977 tons and of bituminous 5,218,969 tons.

Throughout the latter half of 1902 there was a shortage of coal in the eastern markets which draw their supplies from the Appalachian fields. The anthracite mines of Pennsylvania were closed down from the middle of May until late in October, and before the first of July the coal stocks in the large markets were depleted. This threw an increased burden on the bituminous mines and soft coal railroads to which they were not equal. The local ordinances in regard to smoke prevention were suspended temporarily in many of the cities and the enlarged use of bituminous coal raised the prices along the Atlantic seaboard to $5.00 per ton before the first of July. The conditions were made more acute by the car shortage on the eastern railways, and by speculative concerns which bought up the available supply. In September bituminous coal brought as high as $8.50 per ton in New York and New England, and in the following months even higher prices were obtained. Some coal was imported from Canada and England, but it did not materially affect the situation. In the anthracite trade the famine was the most acute ever experienced in this country. The supplies of the large cities were practically exhausted before the strike had continued two months, while the prices rose steadily, reaching a maximum of $20 per ton. With the resumption of operations in the anthracite mines, there was an immediate improvement in the situation, although the supply throughout the year remained insufficient to meet the full requirements. See STRIKES (paragraph Anthracite Coal Strike).

Foreign Countries.—There was no material increase in the output of Great Britain in 1902. Some of the mines in South Wales restricted their output in order to maintain prices, while in other localities a larger yield was reported than in 1901. The question of coal supply, in view of the high prices and the limited character of the British deposits, continued to receive widespread attention. Experiments were conducted by the Institute of Marine Engineers with a view to discovering some substitute material suitable both for heating and metallurgical purposes; a prepared form of peat gave satisfactory trial results, but its high cost would not admit of its utilization at the present time. A decrease in output was recorded in France, owing principally to labor troubles, and in Austria which suffered from an industrial depression. In Germany the coal mining syndicates curtailed operations to avoid a reduction of prices. Russia and Belgium made little advance over 1901. The mines in eastern Canada were especially active, the output in Nova Scotia being the largest on record. New developments were reported in the State of Coahuila, Mexico, and in the province of An-hui, eastern China.

COCHIN-CHINA, a name formerly applied to a greater part of the Indo-Chinese peninsula but now generally restricted to the southernmost division of the French colony of Indo-China. The area is about 22,000 square miles, and the population 2,323,499, of whom about 4500 are Europeans. Saïgon, the capital, has a population of 50,000. A lieutenant-governor and other French officials directly administer the affairs of the country, which is subdivided into 21 provinces and 2 municipalities, and is represented in the French Parliament by one deputy. In addition to the troops maintained in the colony by France, there is a local military force of 2400. There is a well organized school system with over 18,000 pupils enrolled. Revenue and expenditure balanced in the budget of 1901 at 4,439,500 piastres, the contribution of the French budget in the same year amounting to 320,112 francs. (The franc is worth 19.3 cents and the piastre about 2.4 francs.) The chief product is rice, exported in 1900 to the value of 89,225,000 francs. Fish, cotton, silk, pepper, spices, and hides are also exported. Coffee culture is advancing. The total value of exports (with Anam and Cambodia) in 1900 amounted to 107,350,000 francs, and imports, chiefly metals, tissues, and agricultural implements, 121,670,000 francs. There is a railroad from Saïgon to Mytho (51 miles), a line connecting Saïgon with Tan-linh (82 miles) is under construction and other lines are projected. See INDO-CHINA, FRENCH.

CŒLIOSCOPY. This is a new method for examining the peritoneal cavity devised by a German surgeon named Kelling. It consists essentially in filling the peritoneal cavity with sterile air through a hollow needle, then plunging a trochar

through the abdominal wall and passing through the trochar a cystoscope. By this means the adjacent peritoneal surface may be inspected. The method is designed to take the place of exploratory incisions into the abdomen. It has as yet been tried only on animals.

COFFEE. According to *L'Economiste Français* the estimated world's crop of coffee in 1902 was 16,500,000 bags (of 132.28 pounds), as compared with 15,460,000 bags in 1901. The crop of Brazil, the chief coffee producing country, in 1902 was 11,000,000 bags, as compared with 11,500,000 the previous year. The supply continues to run ahead of the consumption. This was conceded to be the principal cause of the low price in the declarations adopted by the International American Coffee Commission, which met in New York City during the month of October, 1902. This commission recommended that efforts be made to improve the varieties and methods of cultivation through public agencies, especially agricultural and botanical stations; "that prizes be offered in order to stimulate cultivations other than coffee; that effective propaganda be established to extend the use of coffee in new markets; that governments aid this by requiring the use of coffee in armies and navies, establishing centres for the demonstration of pure coffee and prohibiting, or heavily taxing, the sale of adulterated coffee and all substitutes bearing the name of coffee." The government of Brazil was invited to convoke as soon as possible a second international conference of experts on coffee "for the purpose of concluding the conventions or treaties of international character, which may be derived from the measures recommended by this conference." Imports of coffee into the United States during the calendar year 1902 amounted to 955,283,919 pounds, valued at $64,157,664, as compared with 1,072,009,182 pounds, valued at $70,156,044 in 1901. In 1902 imports from Brazil amounted to 764,658,963 pounds, valued at $47,004,453; other South America, 63,824,056 pounds, $4,616,897; Central America, 45,512,114 pounds, $4,788,443; Mexico, 30,719,800 pounds, $2,785,633; East Indies, 20,814,403 pounds, $2,385,100; West Indies, 20,429,314 pounds, $1,440,474.

Grafting coffee trees is receiving attention in connection with improving coffee plantations. This method of propagation is of primary importance in districts where nematodes are abundant. These severely affect Arabian coffee varieties, but Liberian tree roots are seldom attacked. The Liberian trees are therefore used as stock for Arabian and other better sorts of coffee. Another advantage is the increased yields obtained from the Liberian trees when grafted with the Arabian, Maragogipe, or other improved varieties, while the quality of the Arabian coffee does not seem to be in any manner seriously affected by growing on Liberian stock. A hybrid between Liberian and Arabian coffee is reported as having been obtained on the island of Réunion. The hybrid is said to resemble the Arabian tree most in the form of its leaves, flowers, fruits, and the quality of the berries, while on the other hand it is considered more resistant to insect attacks and fungus diseases than the Arabian coffee and in these respects resembles the Liberian tree. In fertilizer experiments carried on in Brazil, it was found that nitrogen was of value in coffee culture only when applied in quantities proportional to the phosphoric acid and potash in the soil. A complete fertilizer produced larger berries and grains than potash manures. Nitrogenous manures, on the contrary, diminished the size of the berries and grains. Shade in coffee culture is no longer regarded by all specialists as a general necessity. It is argued that the beneficial effects connected with shade result from the protection afforded the coffee tree and from the increase of soil fertility due to the leguminous species of trees used for shade rather than from the actual shading itself. The newly established Porto Rico experiment station has undertaken systematic investigations with reference to improvement of varieties and of methods of culture.

COINS, Value of Foreign. The following tables show the valuation by the United States Treasury of coins of foreign countries having (A) fixed currencies, or (B) fluctuating currencies:

A.—*Countries With Fixed Currencies.*

Valuations do not include "rates of exchange."

Countries.	Standard.	Monetary Unit.	Value in U.S. Gold.	Coins.
Argentine Republic.	Gold and silver..	Peso.....	$0.96,5	Gold—argentine ($4.82,4) and ½ argentine; silver—peso and divisions.
Austria-Hungary*...	Gold	Crown	.20,3	Gold—20 crowns ($4.05,2) and 10 crowns.
Belgium	Gold and silver .	Franc	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brasil	Gold	Milreis	.54,6	Gold—5, 10, and 20 milreis; silver—½, 1, and 2 milreis.

Countries.	Standard.	Monetary Unit.	Value in U.S. Gold.	Coins.
British North America (except Newfoundland)	Gold	Dollar	$1.00	
British Honduras	....do	....do	1.00	
Chile	....do	Peso	.36,5	Gold—escudo ($1.25), doubloon ($3.65 and condor ($7.30); silver—peso and divisions.
Costa Rica	....do	Colon	.46,5	Gold—2, 5, 10, and 20 colons; silver—5, 10, 25, and 50 centisimos.
Cuba	Gold and silver	Peso	.92,6	Gold—doubloon ($5.01,7); silver—peso (60 cents).
Denmark	Gold	Crown	.26,8	Gold—10 and 20 crowns.
Ecuador†	....do	Sucre	.48,7	Gold—10 sucres ($4.8665); silver—sucre and divisions.
Egypt	....do	Pound (100 piastres).	4.94,3	Gold—10, 20, 50, and 100 piastres; silver—1, 2, 10, and 20 piastres.
Finland	....do	Mark	.19,3	Gold—10 and 20 marks ($1.93 and $3.85,9).
France	Gold and silver	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany	Gold	Mark	.23,8	Gold—5, 10, and 20 marks.
Great Britain	....do	Pound sterling	4.86,6½	Gold—sovereign (pound sterling) and half sovereign.
Greece	Gold and silver	Drachma	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti	....do	Gourde	.96,5	Silver—gourde.
India	Gold	Rupee	.32,4	Gold—sovereign ($4,8665); silver—rupee and divisions.
Italy	Gold and silver	Lire	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Japan‡	Gold	Yen	.49,8	Gold—1, 2, 5, 10, and 20 yen.
Liberia	....do	Dollar	1.00	
Netherlands	Gold and silver	Florin	.40,2	Gold—10 florins; silver—½, 1, and 2½ florins.
Newfoundland	Gold	Dollar	1.01,4	Gold—$2 ($2.02,7).
Peru‖	....do	Sol	.48,7	Gold—libra ($4,8665); silver—sol and divisions.
Portugal	....do	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Russia	....do	Ruble	.51,5	Gold—imperial ($7.718) and ½ imperial ($3.80); silver—¼, ½, and 1 ruble.
Spain	Gold and silver	Peseta	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway	Gold	Crown	.26,8	Gold—10 and 20 crowns.
Switzerland	Gold and silver	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Gold	Piastre	.04,4	Gold—25, 50, 100, 200, and 500 piastres.
Uruguay	....do	Peso	1.03,4	Gold—peso; silver—peso and divisions.
Venezuela	Gold and silver	Bolivar	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

*The gold standard went into effect January 1, 1900. Values are still sometimes expressed in the florin, which is worth 2 crowns.
†Gold standard adopted in November, 1900.
‡Gold standard adopted October 1, 1897.
‖Gold standard adopted October 13, 1900.

B.—*Countries With Fluctuating Currencies.*

Countries.	Monetary Unit.	1901.		1902.			
		Jan. 1.	July 1.	Jan. 1.	April 1.	July 1.	Oct. 1.
Bolivia	Silver boliviano.	$0.46,8	$0.43,6	$0.41,3	$0.40,3	$0.38,2	$0.38,4
Central America	Silver peso	.46,5	.43,6	.41,3	.40,3	.38,2	.38,4
China	Amoy tael	.75,7	.70,5	.66,9	.65,1	.61,8	.62
	Canton tael	.75,5	.70,3	.66,7	.64,9	.61,7	.61,9
	Chefoo tael	.72,4	.67,4	.63,9	.62,3	.59,1	.59,3
	Chinkiang tael	.74	.68,8	.65,3	.63,6	.60,4	.60,6
	Fuchau tael	.70,1	.65,2	.61,8	.60,2	.57,2	.57,4
	Haikwan tael	.77,1	.71,7	.68	.66,3	.62,9	.63,1
	Hankau tael	.70,9	.65,9	.62,6	.60,9	.57,9	.58
	Hongkong tael	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael	.72,8	.67,8	.64,3	.62,6	.59,5	.59,6
	Niuchwang tael	.71	.66,1	.62,7	.61,1	.58	.58,2
	Shanghai tael	.69,2	.64,4	.61,1	.59,5	.56,5	.56,7
	Swatow tael	.70	.65,1	.61,8	.60,2	.57,1	.57,3
	Takao tael	.76,2	.70,9	.67,3	.65,5	.62,2	.62,4
	Tientsin tael	.73,4	.68,3	.64,8	.63,1	.59,9	.60,1
Colombia	Silver peso	.46,8	.43,6	.41,3	.40,3	.38,2	.38,4
Mexico	Silver dollar	.50,9	.49	.44,9	.43,7	.41,5	.41,7
Persia	Silver kran	.08,6	.08,3	.07,6	.07,4	.07	.07,1

*The "British dollar" has the same legal value as the Mexican dollar in Hongkong, the Straits Settlements, and Labuan.

COKE. The production of coke in the United States in 1901 was 21,795,883 short tons, valued at $44,445,923, against 20,533,348 short tons valued at $47,443,331 in 1900, showing an increase in production of 6.15 per cent., and a decrease in value of 6.3 per cent. for the year. The extraordinary demand for coke in the iron and steel industries, which characterized the trade in 1900, continued throughout 1901, but prices revealed a tendency to return to a more normal level. Standard grades of furnace coke were quoted at from $1.75 to $2.25 per ton, the higher prices being reached in the latter part of the year. There were 64,001 ovens in existence at the close of 1901, and 5155 in course of erection. The introduction of by-product ovens into the United States has been successful from a commercial standpoint, and a large increase in the number of plants using this type of oven may be expected in the near future. The by-products including tar, ammonia, and gas, are more valuable than the coke; the value of the tar and ammonia recovered in the manufacture of 1,179,000 tons of coke in 1901 was $1,029,876, while the gas was worth about $3,000,000. Coal-tar is the basis of a series of very valuable chemical compounds including various organic acids, colors, and dyes that are now imported, principally from Germany.

COLLEGES. See UNIVERSITIES AND COLLEGES; see this article also for College Athletics and Gifts to Colleges.

COLLIS, CHARLES H. T., a major-general in the Union army during the Civil War, died May 11, 1902. He was born February 4, 1838, in Cork, Ireland, and received an academic education in England. Having entered the Union service in 1861, he participated in almost every battle in which the Army of the Potomac was engaged during the war, and rose from private to the rank of major-general of volunteers. After the war he acted twice as city solicitor of Philadelphia, was director of city trusts for fifteen years, and was commissioner of public works during the Strong administration in New York City, where he was engaged in the practice of law from that time until his death. He was very active in local Republican politics.

COLOMBIA, a republic in the northwestern part of South America between the Caribbean Sea and the Pacific Ocean. The capital is Bogotá.

Area and Population.—The nine States, or departments, of Colombia have an aggregate area estimated variously at from 455,000 to 513,000 square miles, the boundaries being in dispute on almost every side. Of the population, estimated (1895) at 4,000,000, about one-half are whites and half-castes.

Government and Finance.—The executive power is vested in a president elected for a term of six years, and assisted and advised by a ministry of six members responsible to the congress. This body, in which the legislative power rests, consists of a Senate, composed of senators elected three from each of the States, and a House of Representatives, chosen for four years by universal suffrage. The chief executive in 1902 was José Manuel Marroquin (Conservative), who was elected vice-president in 1898, but succeeded President San Clemente (*q.v.*) as acting president by the *coup d'état* of July 31, 1900. The size of the national army is determined annually by the congress, but in time of war the president may increase its strength to such proportions as may be required.

The monetary standard is silver, and the peso is the unit of value. The peso was worth 38.4 cents on October 1, 1902, but the paper peso, which is in general circulation, is greatly debased. Owing to the rebellion, the extravagance and irregularity of the present executive's management, the financial condition of the country is wretched, and there are few signs of improvement. In the biennial period 1899-1900 the revenue and expenditure balanced in the official estimates at 29,918,640 pesos (paper). In the biennial period 1901-02 the estimated revenue had decreased to 28,983,640 pesos, and the estimated expenditure, due largely to the continued war, had increased to 40,427,575 pesos. The revenue is derived largely from import and export duties, both of which are excessive, and from numerous monopolies. There is practically no coin in general circulation, except in Panama, where conditions are more favorable for trade. Gold is at a premium of 2500 per cent. and the government printing presses continue to turn out paper currency, which has been enormously increased since August, 1901, when official figures showed 350,000,000 pesos to be in circulation. The internal debt amounting in 1899 to 11,359,074 pesos and the foreign debt of £3,514,442 (1896) have both greatly increased during the civil war.

Industries and Commerce.—Mining and agriculture although the principal industries of the country are in a very backward and unsatisfactory condition. The total output of gold and silver, the mining of which has been most developed, averages about $4,000,000 (in United States money). Mines of copper, lead, platinum, mercury, cinnabar, manganese, coal, iron, salt, and emeralds are worked to some extent. Although much of the soil is fertile, only a small part of it is under

cultivation and lack of transportation facilities in the interior renders its development difficult. Nevertheless coffee cultivation is being extended, and rubber, cacao, tobacco, sugar, vegetable-ivory, dyewoods, and various sorts of grain are produced. No recent trade statistics for the country at large exist, owing to the disorganized conditions, which, with the high export duties, have caused foreign commerce to fall off considerably. The value of the foreign commerce for 1898 in gold pesos amounted to: imports, 11,083,028; exports, 19,157,788. The transit trade across the Isthmus of Panama is of considerable importance, aggregating, in 1900, 357,377 tons. The trade of Colombia is largely with the United States, Great Britain, France, and Germany in the order named.

Communications.—The total length of the railways in operation in Colombia in 1901 was 402 miles. In addition 76 miles were under construction, and 330 miles projected, which it is scarcely probable will be undertaken at present. On the Magdalena River, which is navigable 900 miles from its mouth, and on its tributaries 215 miles of which are navigable, 42 steamers ply, and extensive improvements in dredging and canalizing have been undertaken.

HISTORY.

The Liberal Insurrection.—The insurrection of the Liberals against the Conservative government in Colombia, which broke out in the fall of 1899, showed signs, under the energetic leadership of Uribe-Uribe and Herrera, of taking on new life at the beginning of the year 1902. Throughout 1901, it will be remembered, the action of President Castro, of Venezuela, in continually supplying arms, men, and ammunition to the Liberals, brought the two countries to the verge of war. It was indeed asserted by Castro, in vindication of his action, which he made no attempt to deny, that troops raised and equipped by the Colombian government had several times crossed the Venezuelan line and engaged the forces he had set to watch the border. There is little doubt, despite the confusion and uncertainty, that the two governments were taking measures against each other that practically constituted a state of war. But there is also continued hostility between the Liberal and Conservative elements in Venezuela and Ecuador, so that a war between Conservative Colombia and either of the two Liberal states mentioned would have more the character of a war of parties than of nations.

Liberal Victories.—The year 1902 opened with the report that the insurgent general, Herrera, was planning the capture of Panama. The first conflict was a severe naval engagement between the rebel and government forces, which took place in the harbor of Panama on January 19 and 20. The result was a victory for the rebel fleet of three vessels, which sunk the government ship *Lautaro*. General Alban, the able governor of Panama, was killed and was succeeded by General Amaya. While Herrera was thus successful on the isthmus, Uribe-Uribe, who had been working his way across the Santander district toward the capital, Bogotá, was defeated and compelled to stop his advance.

New Conservative Cabinet.—Little of importance from a military point of view occurred during February, 1902, the government forces on the isthmus were greatly reinforced, and Herrera attempted no advance. On February 11 the Colombian cabinet was reconstituted as follows: Home affairs, Perez; war, Fernandez; hacienda (finance), Lagas; treasury, Uribe; public instruction, Casus; posts and telegraphs, Revas.

Death of San Clemente.—The principal event of interest in March was the death, on the 19th, of Dr. Manuel A. San Clemente, who was elected president of the republic in 1898 and was forced into retirement in 1900 by Vice-President Marroquin, who has been conducting the government, as acting president, on autocratic lines ever since. San Clemente, although a Conservative, had like other influential men of his party been driven to sympathize more or less openly with the Liberal movement by Marroquin's almost dictatorial policy. His death legitimatized Marroquin's government. During March and April, 1902, the position of the forces remained about the same, victories seemed to be about evenly divided between the government and insurgents, and Uribe-Uribe was reported to be still "moving on" Bogotá and to have reached a point within fifty miles of that city. Toward the end of April the government sent reinforcements into Panama, to meet an expected advance of the insurgents who had gathered in force at Bocas del Toro, west of Colon. The hostile forces continued to face one another throughout May, the few engagements reported being generally in favor of the Liberals.

Waning of the Revolt.—At the beginning of June the towns of Panama and Colon were reported as being the only places on the isthmus in government control, but on the 22d of the month, after a sharp conflict the government troops occupied Agua Dulce. Reports from the interior seemed to indicate that the strength of the revolution was waning, and toward the end of July it was rumored that Herrera, the Liberal leader, was willing to negotiate terms of peace. The comparative quiet

that prevailed through August proved to be only the calm before the storm, as early in September the revolt broke out with renewed activity. Early in the month Herrera recaptured Agua Dulce from the government, and was reported to be preparing to move on Colon and Panama.

Intervention of the United States.—The renewal of hostilities on the isthmus brought with it the threat of an interruption of traffic on the Panama Railway, which the United States is bound by treaty to protect and keep open. In order to fulfil treaty obligations and preserve the neutrality and inviolability of the railroad property, the United States government dispatched the battleship *Wisconsin*, to reinforce the *Ranger* already at Panama, and the cruiser *Cincinnati* was ordered at the same time to Colon. On September 17 Commander McLean of the *Cincinnati* placed United States marines on all trains leaving Colon for Panama and issued a set of regulations regarding transportation over the railroad, which were printed in Spanish and posted along the line. This act brought forth a storm of protest from papers both in Colombia and in other South American countries, who declared it to be an invasion of the sovereign rights of Colombia over its own territory. The Liberal reawakening, however, proved to be of but short duration, and on September 22 Herrera after making an advance on Panama retired to Agua Dulce. Some days before, September 15, the Liberal power in the interior was reported to have been still further weakened by the surrender of the rebel forces under General Carreazo. The month of October saw a still further decline in the Liberal hopes. Surrenders of insurgents were reported with increasing frequency during the month.

Surrender of Uribe-Uribe.—On October 14, 1902, Uribe-Uribe and Castillo with the largest Liberal force in the field outside of Panama, were decisively defeated at La Cienaga by General Majarres and a strong government force, who followed them to Rio Frio, near Santa Marta, east of Barranquilla, where on October 28 they surrendered. The capitulation included 10 cannon, 2500 rifles, and 300,000 rounds of ammunition. By its terms Uribe-Uribe undertook to lend his influence toward bringing the insurrection to a close. The backbone of the revolt was broken and from this point hostilities were confined practically to Panama.

Peace.—The United States battleship *Wisconsin* arrived at Panama on October 5, 1902, and Admiral Casey at once undertook the rôle of peacemaker. He placed the *Wisconsin* at the disposal of the hostile leaders for the carrying on of negotiations, and at length, on November 21 on the deck of the battleship a treaty of peace was signed by representatives of the government and of General Herrera. The terms of peace included the immediate re-establishment of civil government, the liberation of prisoners of war, full amnesty to all participators in the revolt, and the promise on the part of the government to hold an election for a special congress to which would be submitted the following questions: the construction of the isthmian canal, the reforms proposed by President Marroquin in 1898, the reform of the monetary system, and the proposal to make the canal rentals inalienable. The insurgents agreed to give up their arms and munitions of war and the steamship *Almirante Padilla*. The government agreed to furnish transportation to disbanded rebels and to care for the sick and wounded.

COLONIES. Colonies and other dependencies are treated under their own titles. See also GERMANY (paragraph Colonies); and GREAT BRITAIN (paragraph Colonial Conference).

COLORADO, a western State of the United States, has a land area of 103,645 square miles. The capital is Denver. Colorado was organized as a Territory February 28, 1861, and admitted to statehood August 1, 1876. The population in 1900 was 539,700, while in June, 1902, as estimated by the government actuary, it was 566,000. The populations of the two largest cities in 1900 were: Denver, 133,859; Pueblo, 28,157.

Finance.—The cash in the State treasury at the close of the biennial term ending November 30, 1900, was $1,881,716.20. The total receipts during the two-year period from December 1, 1900, to December 1, 1902, were $4,038,571.65, and the disbursements $3,833,294.27, leaving a balance on December 1, 1902, of $2,086,994.58. For some years previous to 1901 the tax laws of Colorado had been insufficient to meet the expenses and a large floating deficiency had accumulated. In 1901 however, Colorado passed a new tax providing, among other things, for corporation and liquor license taxes and for a collateral inheritance tax. Owing to this enactment it was estimated that there would be a surplus for the two years of approximately $200,000, which might be used in the further reduction of the floating debt, which had been decreased during the biennial term by some $300,000. The gross floating debt on November 30, 1902, was $2,968,762.68; the gross floating and bonded debt combined was $3,973,482.68. Against this amount, however, there were collectable assets due the State, estimated at $1,531,311.87, thus reducing the net debt to $2,442,170.81. The total assessed value of property in the State amounted to $465,874,288 in 1901 and $354,002,501 in 1902. Of the valuation in 1902, agricultural

land was assessed at $26,696,729; grazing land at $15,077,532; land improvements at $14,454,238; town and city lots at $79,782,312, and cattle at $16,778,474. Railroads, which in 1901 were assessed at $121,770,775 were in 1902 assessed at only $55,850,048, thus accounting in large part for the total reduction in assessments in 1902. Larger returns were derived from the corporation license tax of 1901 than were expected, and although $105,350 were derived from the new liquor license fees, the State treasurer stated that there were over 1500 persons selling liquor in the State who had not complied with the law.

Agriculture.—Since the employment of irrigation on an extensive scale agriculture has advanced in Colorado until now the farm products are almost of equal importance with the products of the mines. (For statistics of production see articles on the leading cereal crops.) In the production of sugar beets Colorado ranks third among the States. The production of sugar in 1902 amounted to 29,643 tons. The first agricultural census of Colorado in 1870 showed 1738 farms. The census of 1900 showed 24,700 farms of 9,474,588 acres, valued at $106,344,035. The quantity of land actually under cultivation and in crops was given as 2,273,968 acres. The total value of farm property was placed at $161,045,111. As a sheep raising State Colorado ranks eleventh in the Union. The industry is one of great importance and is the chief source of wealth in several counties. The number of sheep in 1901 was 2,498,200 and the total clip 16,238,300 pounds, or 6.5 pounds a fleece. In 1902 sheep were stated to number 1,917,300, yielding 12,590,720 pounds of wool, or 6.4 pounds a fleece. This falling off was due to the drought and the heavy demand for mutton, which induced stockmen to sell every available animal. There were 76 creameries and 27 cheese factories in the State in 1901 and the total value of the dairy products of the entire State was given at $5,581,134.80. The dairy interests have increased steadily in importance during the past five years. A large condensed milk factory was constructed at Fort Lipton in 1901.

Mining.—The mining industry continues to be the leading one in the State. In 1901 the total value of the products of the metalliferous mines, gold, silver, lead, and copper, was $46,303,239.71, a falling off compared with the preceding year of more than $4,000,000. The production of each of the four metals was less than in the preceding year, except for copper, which showed an increase of $10,285.18. No official statistics for the year 1902 were available, but from unofficial sources it seems that there was a slight increase, as compared with 1901, except in the production of gold. More economic methods of production caused large deposits of low grade ore to be worked so that the tonnage of ore handled was greater in 1902 than ever before. The increased output of silver, however, was more than offset by the decrease in price. Mining and smelting employed a far greater number of men than any other industry in the State. Wages in the mines vary from $2.50 to $4.00 per day. A little more than one-third of the entire mineral output of the State was mined in Teller County. In 1901, 37,260 men were employed in the mining and smelting industries, while in 1902 there were 35,118. Coal mining increased greatly in importance during 1902. During 1901 there were 98 coal mines operating in the State employing about 8000 miners and producing 5,978,410 tons, of which 64,580 tons were anthracite, 4,429,419 tons bituminous, and 699,528 tons lignite. In 1902 the total production was 7,522,923 tons, an increase of 25 per cent.; 790,617 tons of coke were produced, an increase of 42 per cent. over 1901. The year 1902 witnessed extensive prospecting for oil throughout the western part of the State. No flow of any account was obtained, however, except in Boulder County, where small wells yielded perhaps 10,000 barrels during the year. The Florence oil-field continues to be the only one of importance, but the company in possession has made no attempt to increase the output, because, it is asserted, of a desire to refrain from encroaching on Standard Oil territory. The total production for 1902 was about the average (500,000 barrels), with an approximate value at the wells of $600,000. There was considerable activity in the transfer of mining properties during the year. Eastern capitalists have invested extensively in the Leadville district. An English syndicate purchased the Camp Bird mine for $3,500,000. The American Smelting and Refining Company obtained almost complete control of the silver, lead, and zinc smelting business in the State and erected new smelters at Pueblo and at Murray, Utah, with the result that the Philadelphia smelter at Pueblo, an independent concern, was obliged to shut down. The organization of labor unions in different parts of the State was accompanied with considerable disturbance of industry. A protracted dispute at Telluride resulted in considerable violence and some bloodshed. Non-union men, imported to take the places of the strikers, were fired on and compelled to surrender, and were then escorted to the county line by the union men.

In 1902 the Colorado Fuel and Iron Company began an interesting experiment along the line of social betterment. The company, which employs between 16,000 and 17,000 men in its mines, smelters, steel works, etc., scattered throughout Colorado,

Wyoming, and New Mexico, established a "sociological department," for the betterment of the men in its employ and their families. The plan includes the organization and establishment of kindergartens, cooking schools, sewing schools, reading rooms, gymnasiums, night schools, boys' clubs, girls' clubs, traveling libraries, traveling art collections, and popular lectures. Arrangements were made during the year for the erection of a home for disabled workmen. At Redstone, where one of the principal plants is located, cottages were built for the workmen, and the erection of a clubhouse was begun. A weekly paper, *Camp and Plant*, was started in order to give the news of the various settlements. John C. Osgood, chairman of the board of directors of the company, denied that the plan was merely a philanthropic movement. He declared that it was one way of carrying out "common sense business ideas in the conduct of the business." Capt. J. D. Lifter, head of the Volunteers of America in Pueblo, was placed in charge of the entire scheme.

Political Platforms.—The Republican party of Colorado in its platform endorsed the administration and called for the renomination of President Roosevelt in 1904. The plank regarding trusts and corporations declared that "the Republican party of Colorado recognizes in the growth of centralized corporate power evolution in business conditions which is the result of economic laws, but we recognize also that out of such consolidation are arising questions of great moment which must be faced and dealt with. We believe these questions should be solved along the line of regulations against abuses and not by radical legislation destructive of business interests. We pledge ourselves to enact such laws as will fully protect the interests of the people, and we strongly favor supplementing State legislation by national laws if found necessary."

The platform of the Democratic party indorsed the Kansas City platform of 1900 and the cause of bimetallism. It also favored the initiative and referendum. A declaration was made in favor of government ownership of all transportation systems. The so-called banking trust was condemned. Henry M. Teller, United States senator from Colorado, was endorsed to succeed himself.

Legislature.—A special session of the legislature was called on January 27, 1902, to take action in regard to the law passed April 5, 1901, providing for a general revenue and tax system. This act had been contested early in June by the Atchison, Topeka and Santa Fé Railway, and other railway and telephone companies, and the law remained in litigation and no revenue could be collected under it. Both the State District Court of Pueblo County, and the United States District Court, had held the law to be unconstitutional, and the cases were then pending in the State Supreme Court and in the United States District Court. The board of assessors created by the law were enjoined from further proceedings, and it was therefore necessary, in order to collect revenue for 1901, that the legislature sanction the raising of taxes under the previous law of 1901. This sanction, verifying the assessments made by the old State board of equalization in expectation of such an act of the Assembly, was given on March 22, 1902, and the legislature then proceeded to draw up another complete revenue and tax law which, it was believed, would meet the objections of the courts.

Several extensive memorials were addressed by the legislature to Congress. These were, in general, in commendation of Rear-Admiral Schley, in advocacy of Filipino self-government, of the exclusion of Japanese labor, and in opposition to any retirement of the greenbacks, the redemption of silver in gold, the reducing of the currency or permitting banks in any way to regulate the currency. Opposition was also made to the admission of free sugar from Cuba. It was stated that four and one-half billion pounds of sugar were imported in 1901, of which one and one-fifth billion came from Cuba. Beet sugar, it was held, was supported by European governments. Free Cuban sugar would narrow Colorado's market, and the existing sugar tariff was the only one from which farmers and producers in the west directly benefited. As measuring in some degree the extent of this benefit, it was said that in 1899 the beet sugar product of California had been valued at $100,000; in 1900 at $1,125,000; in 1901 at $3,600,000; and for 1902 it was estimated at $6,000,000.

By a law of 1901 a State irrigation canal was authorized in Montrose and Delta counties, to be known as State Canal No. 3, and to extend from the Gunnison River below the mouth of the Cimarron River to the Enconpalyre River valley, and to have such laterals and branches as would irrigate the greatest amount of land. An amendment to this law was passed in 1902, giving the board of control who were to construct it more adequate power to issue certificates of indebtedness for money advanced, and in other ways to provide for its proper construction.

Single-Tax Campaign.—The attention of students of political economy was drawn to Colorado during the autumn of 1902 by what was practically a campaign for the single-tax. The "Bucklin amendment" to the State constitution was the issue. The proposed amendment, framed by State Senator James W. Bucklin, after a visit to Australia and New Zealand, provided for the adoption of the system he found

in operation in some parts of Australia—local option in taxation. Each county and city in the State was to be given power to determine its own method of taxation. It took a strong fight by the friends of the measure to get the legislature to submit it to the people, and its foes induced the governor to call a special session of the legislature to repeal the submission act. The legislature, after an exciting debate, refused to repeal it, however, and the campaign went on. The amendment was indorsed by the Socialists and the State Federation of Labor, and it became clear that if the proposed home rule in taxation were granted many localities would adopt the single-tax. After an exciting campaign the amendment was defeated.

Elections.—At the regular biennial State election held November 4, 1902, a full State ticket was elected, all but the superintendent of education being Republicans. For governor, Peabody (Rep.) received 87,512 votes, and Stimson (Dem.) 80,217, the Republican candidate having a plurality of 7295 votes. The State legislature for 1903 comprises 53 Democrats and 47 Republicans.

State Officers.—For 1902: Governor, James B. Orman (Dem.); lieutenant-governor, David C. Coates (Pop.); secretary of state, David A. Mills (Pop.); treasurer, J. N. Chipley (Sil. Rep.); auditor, Charles W. Cronter (Dem.); adjutant-general, G. F. Gardner; attorney-general, Charles C. Post (Dem.); superintendent of education, Helen L. Grenfel (Dem.). For 1903: Governor, James H. Peabody; lieutenant-governor, W. A. Haggott; secretary of state, James Cowie; treasurer, Whitney Newton; auditor, John A. Holmberg; adjutant-general, G. F. Gardner; attorney-general, Nathan C. Miller; superintendent of education, Helen L. Grenfel, all Republicans except the superintendent of education.

Supreme Court, in 1902 and 1903: Chief justice, John Campbell (Rep.); associate justices, William H. Gabbert (Dem.), and Robert W. Steele (Fusion).

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

COLORED METHODISTS, exceeding in number 1,500,000, constitute a considerable part of the denominational family of Methodism. They are included mostly in the several distinct organizations maintained by the African race, though some other Methodist bodies have negro members. The more important colored Methodist churches are the *African Methodist Episcopal,* dating from 1816, with 6429 ministers, 5715 churches, and 728,354 communicants; the *African Methodist Episcopal Zion,* which was formally established in 1820, and now has 3310 ministers, 2985 churches, and 542,422 communicants; and the *Colored Methodist Episcopal,* founded in 1870, which includes 2061 ministers, 1433 churches, and 204,972 communicants. Among the denominations of the United States, these bodies rank, respectively, tenth, thirteenth, and twenty-first, in numerical strength. The Methodist Episcopal Zion Church has a publishing house in Charlotte, N. C., and issues eleven denominational publications and periodicals. Under its auspices are six colleges and seventeen minor schools. Its church property is valued at $4,619,520. During 1902 several new church edifices were built in Chicago, Kansas City, Boston, and in Louisville and other southern cities where the denomination is strongest. The report of Bishop Levi J. Coppin, of the African Methodist Episcopal Church, who returned to this country after a year in Africa, was of considerable interest. Bishop Coppin succeeded in organizing in South Africa a branch of the church, including some twenty places of worship, the first having been dedicated early in 1901 at Arensdale, Cape Colony. At Cape Town was established Bethel Institute, an institutional church whose objects are less denominational than Christian and generally educational. The general conference of the Colored Methodist Episcopal Church was held in Nashville, Tenn., in May, 1902.

COLUMBIA UNIVERSITY, New York City, founded 1754. The event of the year 1902 that overshadowed all others was the election and inauguration of Nicholas Murray Butler, Ph.D., LL.D., as president to succeed Seth Low, who resigned in October, 1901. Dr. Butler, who had been acting-president since the opening of the 1901-02 session, was elected president on January 6, and was inaugurated on April 19 in the presence of a most distinguished assembly, including the President of the United States, governor of New York, mayor of the city, and the presidents of most of the American universities. President Butler's fitness for this position is especially marked, since he is recognized as one of the leading educational authorities in the United States. The immediate effect of this new leadership was seen in the marking out of a distinct educational policy for the university. The most important item in this policy is the proposition for the shortening of the collegiate course, a proposition discussed more fully in the article UNIVERSITIES AND COLLEGES. The proposition is that the course for the B.A. degree be curtailed to two years, including the so-called "liberal studies" only and eliminating all the introductory professional courses that now in large part comprise the course of the senior year. The four-year course is also allowed to stand, but it is proposed that the degree of M.A. be given for this.

Columbia University did not commit itself to this policy in 1902, but the policy is definitely suggested as one probable in the course of a few years. The proposed two-year course would include all the studies now prescribed and would make it possible to require the possession of the baccalaureate degree before admission to the professional schools without entailing a hardship upon the students, as is now done in the majority of cases where such requirements are made. Four other points in the educational policy, as outlined by the president in his first annual report, are: (1) The maintenance of educational efficiency, especially through the devotion of greater attention and support to undergraduate work; (2) the promotion of research, since the best teacher is a constant student, and the student tends to become an investigator, and since the work of investigation is the express function of the university; (3) the development of the social side of academic life, especially through a dormitory system, which is so much needed in a large city to preserve any community life in the college; and (4) the better organization of the teaching of the natural sciences, a necessity due to the manner in which the study of the sciences has grown up at Columbia through the influence of the School of Mines, where organization has been effected somewhat to the neglect of similar organization in the college itself. Preliminary to any great advance in the educational efficiency of the university, many financial needs must be met. The president in his annual report sets these forth as follows: To pay the existing debt, $3,000,000; to purchase property upon which the university has an option until July, 1903, $2,000,000; to build and equip a college hall, $500,000; to complete and equip University Hall, $1,000,000; to build and equip a law school building, $400,000; to build and equip a building to accommodate departments temporarily in the Library Building, $400,000; for general university purposes, including the most pressing needs of the Schools of Applied Science and the Medical School, $2,700,000; a total of $10,000,000. The gifts to the institution for the scholastic year 1901-02 amounted to $1,082,581, divided as follows: To Columbia University, $421,446; to Barnard College, $403,290; and to Teachers College, $257,844. The bulk of the fund to the university proper and to Barnard College was for endowments, while that to Teachers College was for buildings. In addition to this, Mr. John D. Rockefeller gave in October, 1902, $500,000 to the endowment funds of Teachers College, conditioned upon the payment of the outstanding indebtedness of $190,000 and the securing of an additional $250,000 for endowments. These conditions at the end of the year were partially met and promised soon to be completely filled. The most important internal administrative changes of 1902 were the establishment of a school of fine arts, of which the department of architecture, formerly of the faculty of applied science, and the department of music, formerly of the faculty of philosophy, constitute the nucleus. Further changes separate anthropology from psychology, and education from philosophy, as independent departments. During the year the teaching staff increased to 425. Among the appointments were that of Felix Adler, Ph.D., as professor of social and political ethics; L. Emmet Holt, M.D., LL.D., professor of diseases of children; Frederick Hirth, Ph.D., professor of Chinese; Walter B. James, M.D., professor of the practice of medicine; John D. Prince, PhD., professor of Semitic languages; Julius Sachs, Ph.D., professor of secondary education; Charles Thaddeus Terry, B.A., LL.B., professor of law; Frederick J. E. Woodbridge, M.A., professor of philosophy; Henry L. Moore, Ph.D., and Henry Rogers Seager, adjunct professors of political economy.

The total registration in all departments of the university for 1901-02, including extension students, auditors, and students in the summer session, was 5134, as compared with a similar total of 4440 for the preceding year, this being a gain of 15 per cent. Of these, 831 were undergraduates, 508 were non-professional graduate students, 2509 were professional graduate students, 1902 were summer session, or extension, students or auditors. On November 7, 1902, the total registration in all departments, including extension students, was 4837, as compared with a similar total of 4499 at the same period of the preceding year. There was an increase of enrollment in every department except medicine, where the advanced admission requirements caused a considerable decrease in numbers. See PSYCHOLOGY, EXPERIMENTAL (paragraph Columbia University).

COMBES, JUSTIN LOUIS EMILE, who succeeded M. Waldeck-Rousseau as premier of France in June, 1902, has assumed power with the responsibility of carrying out the policy of his celebrated predecessor. This means a vigorous enforcement of the new Associations law, requiring the registration of religious orders; the further weakening of clerical influence by repealing the laws which, in 1850, gave ecclesiastical institutions privileges not enjoyed by the national schools; the establishment of pensions for the workingman, and of an income tax. This extensive programme has behind it a substantial Radical majority in the Chamber of Deputies. M. Combes, who was born at Roquecombe, department of Tarn, September 6, 1835, did not gain wide political recognition until comparatively late in life, but had

previously won distinction as a scientist, metaphysician, and opponent of clericalism. In his youth he was devoted to theological studies, and took orders in the Church. Subsequently he renounced the Church, and, having taken his degree in medicine in 1867, began practice at Pons, of which town he became mayor in 1875. Henceforth he gave attention to politics, though continuing his literary and scientific studies. In 1879 he became a member of the *Conseïl Général,* and in 1885 was elected to the senate, to which he brought a scholarship, culture, and practical efficiency in the conduct of business that gave him a solid reputation in that body. After serving as vice-president of the senate (1893-94), he was chosen minister of public instruction in the cabinet of M. Bourgeois in 1895, and, after the overthrow of that cabinet, renewed his parliamentary activity in regard to the educational question. In his early life he published *Psychology of St. Thomas Aquinas,* and contributed to the *Revue Contemporaine.*

COMETS. See ASTRONOMICAL PROGRESS.

CONGO FREE STATE, a country of central Africa under the sovereignty of Leopold II., king of the Belgians, has an estimated area of 900,000 square miles and a population variously estimated at from 14,000,000 to 30,000,000. The white inhabitants are few, numbering in 1902 only 2346, of whom about 500 were resident at Boma, the capital.

Government and Finance.—Except as the administration is circumscribed by the provisions of the Berlin congress of 1885, the Congo Free State is an absolute monarchy. King Leopold at Brussels governs the country through a secretary of state, under whom are three secretaries-general for the departments of foreign affairs, finance, and the interior; at Boma the king is represented by a governor-general, and the fourteen districts into which the country is divided, are administered by Belgian commissioners. Under an act of August 10, 1901, Belgium continued her right to annex the country, at such time as the king might choose. The effective army numbers over 12,000 natives, commanded by European officers.

Revenue accrues principally from the state domain, customs, and transport dues. Estimated revenue and expenditure in francs have been, respectively, as follows (the franc equals 19.3 cents): 1900, 26,256,500 and 27,731,254; 1901, 30,751,054 and 31,256,054; 1902, 28,709,000 and 32,405,492. The public debt is stated at 166,226,635 francs; included in this amount is a loan of 50,000,000 francs issued in October, 1901, for the construction of railways and other public works. The Belgian act of August 10, 1901, relieved the Free State from interest payments on the two Belgian loans—one of 25,000,000 francs, made in 1890, and the other of 6,804,415 francs, made in 1895—until Belgium should renounce her right of annexation.

Production and Commerce.—The most important products and exports are rubber, ivory, palm-nuts, and palm-oil. Tobacco, resin, coffee, and cacao are also produced. It is stated that the number of coffee trees increased from 61,500 in 1895 to 2,631,000 in 1901, and cacao trees from 13,800 to 490,700.

The special imports and exports in 1900 were valued at 24,724,109 francs and 47,377,401 francs, respectively; general imports and exports, 31,803,214 and 51,775,978, respectively. In 1901 the special imports and exports amounted to 23,102,000 francs and 50,488,000 francs, respectively, and the general 26,793,000 and 54,008,000, respectively. The leading exports in the special trade in 1901 were: Rubber, 43,966,000 francs; ivory, 3,965,000; palm-nuts, 1,373,000; palm-oil, 802,000. The special imports to and exports from the Free State by countries of greatest trade importance were, respectively, in 1901: Belgium, 16,716,000 francs and 47,064,000 francs; Great Britain, 2,881,000 and 228,000; Germany, 1,059,000 and 125,000; Portuguese dependencies, 586,000 and 1,682,000.

Communications.—The Congo River is navigable as far as Matadi, twenty-seven miles above Boma and 112 miles from the Atlantic. From Matadi to Stanley Pool (Leopoldville) there are numerous rapids, and communication is effected by a railway 247 miles long, which was opened to traffic July 2, 1898. There is also a railway twenty miles in length between Boma and Mayumbe. Above Stanley Pool there are about 1000 miles of navigable water. In 1902 a concession was granted for the construction of a railway to be eventually a part of the line from Cairo to Cape Town. See CAPE-TO-CAIRO RAILWAY.

Administrative Outrage.—That the Congo State should be called "free" is an irony less amusing than tragic. For a number of years atrocities, attested by witnesses and other authorities who in large part must be regarded as trustworthy, have been perpetrated by the Belgian officials and their native troops. In the spring of 1902 the Aborigines' Protection Society, in behalf of the Congo inhabitants, appealed for intervention to the British government as one of the signatories of the Berlin treaty, which gave the state existence, and, according to the terms of which, Great Britain has clearly the right to intervene. To some extent the excuse for the deplorable conditions in the Congo is found in the governmental system established there. When the sovereignty of the country was placed with King Leopold, the first necessity

of the administration was revenue, but none of the usual sources of revenue was available and adequate. Accordingly all the wild land—probably nine-tenths of the whole area—was declared crown property: and for this small blame attaches to the Belgians; but in their manner of utilizing the property all the trouble has arisen. To various companies the government sold rubber monopolies, usually retaining for itself half the profits. But soon a difficulty arose: the natives had little liking for rubber gathering, and besides, as they would think, was not the rubber their own to use or not use as they chose? Then the government, resolved upon compulsion, called out the militia—savages and, in some instances, cannibals, provided with modern arms. "Their method was to surround a village, order out its adults on a rubber hunt, and, if resisted, or if the rubber brought in was insufficient, to kill, mutilate, or in some instances, as the [Aborigines' Protection] Society affirms, *eat* the defaulters. If the natives fled they were hunted in the woods, and if they fought their heads or hands were brought into the stations in evidence that the resistance had been put down." In addition to this forced labor, amounting to practical slavery, many natives, it is said, have been sold into actual slavery, the worst crimes of the Arab slave-raiders being repeated. It is alleged that the occasional governmental reproof is directed only against minor officials, and that "so-called reforms are merely intended to throw dust in the eyes of the public."

CONGREGATIONALISTS are represented in every State of the Union, as well as in Hawaii, Cuba, Porto Rico, and in mission fields generally. The Congregational *Year Book* of 1902 records the statistics of the denomination as follows: Ministers 5717, churches 5753, members 645,994; Sunday school members 658,405; members enrolled in various young peoples' organizations, such as the United Society of Christian Endeavor, 198,407; benevolent contributions $2,233,722; expenditures, $7,580,665. The work of the church is conducted through seven societies. The *American Board* (see AMERICAN BOARD OF COMMISSIONERS FOR FOREIGN MISSIONS) is the oldest foreign missionary society in the United States; and the *American Missionary Association* (see MISSIONARY ASSOCIATION, AMERICAN) is interested in the religious and educational improvement of several classes among the people of the United States. The *Education Society* controls one theological seminary, four colleges, twenty-three academies, and ten mission schools, and assists 150 young men preparing for the ministry. The total receipts for the fiscal year 1902 were $135,288. A notable event of 1902 was the establishment by the Educational Society of a seminary at Atlanta, Ga., intended chiefly for the ministers, and subsequently students, of the Congregational Methodist and Free Methodist churches in Georgia, Florida, Alabama, and Louisiana, which recently affiliated with the Congregationalists. The work of the *Church Building Society* consists in lending aid to churches already organized by other societies of the denomination. Its income for the year aggregated $251,668. The *Home Missionary Society* is engaged in providing Christian education for the destitute and in helping congregations that are unable to support the gospel ministry. In the fiscal year 1902 it employed 1868 missionaries and expended $293,064, besides the amounts disbursed by the fourteen auxiliary societies, making a total for home missions of $548,677. At the annual meeting in Syracuse, it was announced that the society was free from debt for the first time since 1893. The committee of fifteen appointed in 1901 to consider the matter of an adjustment between the National Society and its State auxiliaries, made its report, recommending (1) "an annual conference of representatives of the auxiliary societies and the officers and executive committee of the Home Missionary Society, to be held at the annual meeting; (2) a limited representative governing membership for each of the home societies of the denomination." An amendment to the constitution in regard to the voting membership of the society also was adopted. The *Sunday School and Publishing Society* plays an important part in the pioneer missionary work of the church. Of 131 new churches reported in 1902, 51 had developed from Sunday schools established by this agency, and it aided 50 others. The national organ of the denomination, the *Congregationalist*, which in 1901 was transferred to the Sunday School and Publishing Society, has been improved considerably and its circulation has materially increased, yielding a good income which is devoted to the missionary work of the society. Funds to the amount of $131,000 are in charge of the trustees of *Ministerial Relief*, and there are organizations in twenty-one States, thirteen of which possess invested funds aggregating $226,968. There is a tendency among the societies to defer more to the State and local bodies for representation and control than to individual churches, an indication that Congregationalism, while not losing autonomy, is becoming more compact as a body. Other items of interest during 1902 were the employment, by several of the societies, of young men specially trained in administrative fields of missionary work; the appointment of new instructors in the theological seminaries at Bangor, Me.; Chicago, Ill., and Hartford, Conn., and the shortening of the course in the Yale Divinity School to two years for those who have pursued prescribed studies during

the senior academic year. The next session of the Congregational National Council, which is the representative body of the denomination and which meets triennially, will be held in Des Moines, Ia., in October, 1904. The officers of the council are: Moderator, Rev. Amory H. Bradford, D.D., Montclair, N. J.; secretary, Rev. Asher Anderson, D.D., Boston, Mass.; treasurer, Rev. Samuel B. Forbes, Hartford, Conn.; registrar, Rev. Joel S. Ives, Hartford, Conn.

CONGREGATIONAL METHODIST CHURCH, organized May 8, 1852, thus completed in 1902 its semi-centennial, which was appropriately celebrated. The publishing facilities of the church, as provided at the last quadrennial general conference (1901), are being improved; and there was in 1902 a considerable increase in the circulation of its official organ, *The Watchman,* edited and published by the Rev. Rolfe Hunt, D.D., at Milne, Ga. The Congregational Methodists have 398 churches and 400 preachers, and a membership of 22,000. The denomination is composed of both white and colored members, its negro adherents, over 300 in number, forming separate conferences. A pamphlet, *The Founders of the Congregational Methodist Church,* was issued in 1902.

CONGRESSIONAL LIBRARY, Washington, D. C., had on June 30, 1902, 1,114,111 printed books and pamphlets, 99,532 manuscripts, 64,921 maps and charts, 345,511 pieces of music, and 127,002 prints. The accessions for the year 1901-02 in all departments amounted to 204,947. The library force consists of 406 persons, of whom 231 are connected with the library service proper, 58 with the copyright office, and 117 with the care of the building and grounds. The expenditures for 1902 were $578,585.97, and the appropriations $583,667.77. The increased appropriation granted by Congress has enabled the library to secure a number of accessions to the corps of specialists. The increase of the force during the past two years has been chiefly in the catalogue division, which has now reached its maximum. Gifts in 1902 were numerous, but in general of ordinary material. No collection of great value and no money gifts of importance were received, but an interesting addition was a complete set of the codes and rites of China in 131 volumes, presented by the Hon. W. W. Rockhill, to whom the collection of Orientalia, now embracing nearly 10,000 volumes, is chiefly due. A new stack has been completed on the second floor, and the Smithsonian serials, to the number of 30,000 volumes, have been moved into it. The library and files of the United States Industrial Commission were deposited in the library, subject to the further orders of Congress. Considerable additions have been made to the collection of Swiss, Italian, Prussian, and Canadian documents. A special effort was made to secure reports of chambers of commerce throughout the world. Important purchases have been made of complete and partial sets of periodicals, and various papers of Salmon P. Chase have been acquired, including his journal, 1829-35 and 1861-63, and a diary for 1864; his letter-books for 1833-37 and 1867-68; his notes on Supreme Court cases of 1869; his political scrap-books and commonplace books; a large number of letters written to him, and copies by his secretaries of letters written by him. Notable accessions have been made to material relating to the United States navy. Among these are the letter-book of David Porter (1807-08), and the letter and muster books of the frigate *Alliance* (1782-83). In the copyright office, 84,345 entries of United States productions and 8633 entries of foreign productions were recorded. An important enterprise was inaugurated in November, 1901, under the charge of Mr. C. H. Hastings, in the distribution of printed catalogue cards for the co-operative use of other libraries. The publications of the library during the year include a list of books on Samoa and Guam; a list of books relating to trusts; a list of references on *Reciprocity; Debates in the Federal Convention of 1787,* held at Philadelphia, on the election of senators; a list on the *Philippines,* shortly to be issued by the war department as a supplementary volume to its *Gazetteer* of the Philippines, has been edited and in part completed, compiled by the Division of Bibliography. There were issued 415,911 books in the main reading room, and 31,831 for home use. The increase in the number of readers, compared with the preceding year, was 6488.

CONNECTICUT, one of the New England States of the United States, has a total area of 5612 square miles. The capital is Hartford. Connecticut was one of the thirteen original States. The population in 1900 was 908,355, while in June, 1902, as estimated by the government actuary, it was 944,000. The populations of the largest cities in 1900 were: New Haven, 108,027; Hartford, 79,850; Bridgeport, 70,996; and Waterbury, 45,859.

Finance.—The balance on hand in the treasury of Connecticut on October 1, 1901, was $557,046.52. The receipts from all sources during the year were $4,297,540.23 and the disbursements $4,174,188.79, leaving in the treasury on September 30, 1902, $680,397.96. The principal items of revenue and the amounts derived therefrom were: Inheritance tax, $335,734.96; insurance fees, $108,666,161; investments tax, $155,278.10; tax on mutual life insurance companies, $310,402.98; steam railroads

tax, $984,918.37; tax on street railroads, $238,922.50; tax on savings banks, $445,721.77. The funded debt of the State at the end of the year was $1,663,100. From this amount, however, should be deducted cash in the treasury to the credit of the civil list funds amounting to $571,697.90, leaving a net State debt of $1,091,402.10. During the fiscal year the debt was reduced in the amount of $468,000, and between October 1 and December 31, 1902, additional bonds were redeemed in the sum of $375,000. Receipts for the fiscal year were more than $600,000 in excess of the previous year, and, during the last three fiscal years, State bonds were retired to the amount of $1,557,000.

Industries.—Connecticut leads the States of the Union in the per capita value of manufactures, and in the number of patents isued per capita. According to the last report, one patent was issued to every 1203 of its population. The latest official industrial statistics cover the years 1900 and 1901. In 1900 the value of the manufactured products of Connecticut was $181,912,383.12; in 1901 the value was $175,553,935.35, a decrease of 3.5 per cent. The proportion of these values chargeable to labor was 25.4 per cent. in 1900 and 26.2 per cent. in 1901.

Railroads.—The report of the railroad commissioners of Connecticut for the year ending June 30, 1902, shows unprecedented activity in business. There are but four roads operating in the State—The New York, New Haven and Hartford; the Central New England Railway; the New London Northern Railroad; and the South Manchester Railroad. These four roads reported an aggregate capital of $103,346,568.38, an increase of $3,000,000 over the previous year. The capital stock per mile of track was $67,543.24. The total funded debt of the companies was $39,144,000, being the same as for 1901. The funded debt per mile of road was $25,582.98. The current liabilities for the year amounted to $6,637,594.30, or $640,040.17 less than for the previous year. The gross earnings for the year ending June 30, 1902, were $45,125,648.70, as compared with $41,761,906.26 for the preceding year, an increase of 8 per cent. The passenger revenue was $18,275,183.82, or $1,132,968.24 in excess of that item for 1901. The passenger earnings per mile of road were $8,681.33, and per train mile $1.39. The freight carried amounted to 18,730,512 tons, an increase of 1,578,519 tons, or 9 per cent. The total freight revenue was $22,088,944.40, an increase of $1,867,144.44 over the previous year. The average receipts per ton mile were $0.0145. The freight earnings per mile of road were $9,815.14, compared with $8,944.37 for 1901, and per train mile they were $3.13. The taxes paid to Connecticut by these roads amounted in 1902 to $984,918.37. The length of the main lines and branches in Connecticut was 1,013.35 miles. Auxiliary tracks and sidings raise the total mileage for the State to 1,836.68, an increase of only 6.15 miles over 1901. The total number of employees was 30,001, receiving $18,223,913.06 in wages.

Labor Affairs.—The conductors and motormen of the Fairhaven and Westville Street Railroad Company of New Haven struck on August 5 because several men had been discharged. They demanded as condition for returning to work that "the Fairhaven and Westville Railroad Company recognize our union," and that the men who were discharged without cause should be reinstated. Traffic was suspended for four days, public sympathy being with the strikers. The services of the State Board of Arbitration were brought into requisition, and the mayor of New Haven supplemented their efforts by securing maintenance of the peace during the arbitration proceedings. On August 9 the men returned to work, their claims being practically conceded. There was no disorder or violence in the interval. The anger of the local unions was aroused by the action of Franklin T. Ives, who, it was alleged, refused to take part in the arbitration proceedings, although a member of the board. His resignation was demanded by the labor organizations of the State, but action was held over by the governor.

The State commissioner of labor, in his annual report, dated March 1, revealed the fact that there was a widespread practice among overseers of mills and factories of blackmailing applicants for work, compelling them to pay a sum down or agree to turn over a portion of any wages the applicants might receive, before their requests for employment would be considered. The evils of this oppression have hardly been equaled by the private intelligence offices.

Constitutional Convention.—The revised constitution adopted by the constitutional convention, which met on January 1, 1902, pursuant to the vote of the electors on October 7, 1901, was rejected on June 16, 1902, by a vote of 21,234 to 10,277. Both the small total vote, 15 per cent. of the registration, and the fact that every county voted against the revision, exemplified the general dissatisfaction of the people with the convention's work. The convention had been called mainly to modify those clauses of the existing constitution, unrevised since 1818, which, under the town representation rule, gave the control of the legislature to a small minority of the electors. This minority was estimated at not more than one-fifth of the voters for the Senate and not more than one-ninth for the House. In the latter body such inequalities existed as that, for example, giving two representatives each to the towns

of Union, Hartland, Killingworth, and Colebrook, having populations, respectively, of 428, 592, 651, and 684; and at the same time only two representatives each to the cities of New Haven, Hartford, Bridgeport, and Waterbury, having populations, respectively, of 108,027, 79,850, 76,996, and 51,139 (1902 estimates). Amendments introduced in the legislature in 1901 to place representation and population in some approximate proportion, failed to pass, and it was then agreed on the advice of Governor McLean and other prominent Republicans to call a general State convention. But as the convention was made to consist of one delegate from each of the 168 towns in the State, it represented almost exclusively the rural element, which is utterly opposed to constitutional revision. In addition to this, the rural forces were well organized under the leadership of D. T. Warner, while the advocates of representative reform acted without plan or concert. Some sixty plans for readjusting representation were offered to the convention; of these the least disliked was the so-called "one-and-sixty" plan. This scheme proposed to give each town one representative in the Assembly, and to increase the Senate districts, based supposedly on population, from thirty-six, as secured by a constitutional amendment in 1901, to sixty. This plan was carried through on March 13 by a vote of 85 to 66; but so much opposition to it developed in the press that a report of the committee of style on April 30, criticizing the phraseology of the article, was made the excuse for its reconsideration, and it never thereafter obtained a majority. The unrepresentative character of the convention is shown by the fact that the 85 votes for the "one-and-sixty" plan, represented, according to 1900 census figures, only 156,387 out of a population of 908,355, i.e., 16 per cent. of the population outvoted 84 per cent. in the convention. No other plan, however, was better liked, and it was only the absolute necessity of taking some action that led the convention on the day of its adjournment to adopt a scheme offered without previous consideration. This plan gave one representative to towns of 2000 population, and added one representative for every 50,000 increase in population. But this change suited neither the thirty small towns stripped of one representative each, nor the larger towns and cities allowed only one or two additional representatives, nor the thriving intermediate communities that gained nothing. For these reasons and because it was felt that a constitutional amendment effecting the same purpose in a better way might now be carried in the near future, the revision was rejected. But while the constitution thus failed, some of its articles indicated much-needed reforms. One of these was to allow proposed amendments to be submitted to the people after a majority vote in both houses, instead of as at present requiring first the amendment's acceptance by the house and then at the next session its reapproval by two-thirds of both houses. Another article prohibited members of the legislature from accepting any other public office, and still another gave the governor power to veto parts of appropriation bills. Finally it was proposed to prohibit the legislature from enacting special legislation. The desirability of this change is indicated by the fact that the legislature of 1901 passed 566 special acts, as against only 184 public acts.

Political Conventions and Platforms.—The Republican State convention was held at Hartford on September 17. The platform endorsed President Roosevelt's administration, and called for his nomination in 1904. Concerning Cuba and reciprocity the platform says: "We believe, with William McKinley and Theodore Roosevelt, in the policy of trade reciprocity as the natural supplement of tariff protection, and the key with which to unlock the world's markets for the surplus products of American fields and American mills. Especially we commend the President's efforts to perform a plain duty and obtain for this country a lucrative commerce by arranging a judicious reciprocity treaty with Cuba." Concerning the revision of the tariff, the opinion of the convention was expressed in the following words: "We believe, with Lincoln, Garfield, Blaine, McKinley, and Roosevelt, in a protective tariff that wisely fosters American industries and safeguards American wages. We oppose a general revision of the tariff at this time as both inopportune and unnecessary. If, in any schedule, import duties are found that have been notoriously perverted from their true purpose to the inordinate enrichment of corporations, monopolistic in fact or in tendency, we look to a Republican Congress to apply, in its wisdom, the needed corrective without impairing the principle of protection." In the matter of trusts and other combinations in restraint of trade, the platform said: "We believe that great aggregations of capital commonly called 'trusts,' while necessary for the economical conduct of large business and commercial enterprises, should be subject to such supervision, state or national, as will safeguard public and private interests."

Concerning State matters, the Republican platform said: "We declare our faith in the historical town system of Connecticut, but, recognizing the natural desire of the populous towns for increased representation in the House, we believe that changes which shall preserve the fundamental features of the present system and

at the same time satisfy more reasonable demands, should be effected, and that they can be accomplished by the regular process of constitutional amendments."

The Democratic State convention was held at New Haven on September 25. The platform favored an immediate and substantial reduction of the tariff on Cuban imports; the election of United States Senators by popular vote, the immediate repeal of all tariffs upon trust-produced articles, so as to prevent monopoly under the plea of protection; the stringent enforcement of all existing laws against trusts and the passage of such new laws as are required to supplement and give potency to existing statutes.

Elections.—At the municipal elections in April, 1902, a labor candidate was elected mayor of Hartford, one of the wealthiest cities in the Union. The successful candidate, Ignatius A. Sullivan, president of the Hartford Central Labor Union and of the Connecticut Federation of Labor, was the nominee of an independent organization, known as the "Economic League," and became, through negotiations of the League leaders with the Democratic leaders, the nominee of the latter party. Mr. Sullivan was a clerk in a clothing store. The platform of the League advocated public ownership of public franchises, free text-books in the public schools, the eight-hour day for public employees, and certain distinctive local measures. At the election, the Republicans were successful in securing three-fifths of the common council and the whole of the ticket except mayor. Mr. Sullivan received a majority of over 500 votes. He made a number of speeches during the campaign, in nearly all of which he declared that, whereas the workingmen of Hartford did not expect or hope to gain control of the city affairs, they did insist that they ought to be at least consulted concerning the city's administration. This frank avowal aided in winning votes for him. After his electon, the new mayor announced that he would administer his office impartially, and would confer with financiers and business men on all matters in which they were interested. The election of Mayor Sullivan was the third of a series of labor victories, the other two having been at Bridgeport and Ansonia. The mayor of Bridgeport, Dennis Mulvihill, was by trade a stoker, and the mayor of Ansonia, Stephen Charters, a carpenter. At the regular biennial State election, held on November 4, 1902, a full Republican State ticket was elected. The vote for governor was: Chamberlain (Rep.), 85,338, and Cary (Dem.), 69,330.

State Officers.—For 1902: Governor, George P. McLean; lieutenant-governor, Edwin O. Keeler; secretary of state, Charles G. R. Vinal; treasurer, H. H. Gallup; comptroller, Abiram Chamberlain; attorney-general, Charles Phelps (term, four years, January, 1903); auditors, W. A. Riley, James P. Bree; commissioner of insurance, Edwin L. Schofield—all Republicans except James P. Bree, Democrat. For 1903: Governor, Abiram Chamberlain; lieutenant-governor, Henry Roberts; secretary of state, Charles G. R. Vinal; treasurer, H. H. Gallup; comptroller, William E. Seeley (the terms of all the above ending in January, 1905); attorney-general, William A. King (term four years, ending January, 1907); auditors, W. A. Riley (term, four years, from July, 1903), James P. Bree (term, four years, from July, 1903); acting commissioner of insurance, Theron Upson—all Republicans, except James P. Bree, Democrat.

Supreme Court of Errors: Chief Justice, David Torrence; associate justices, Simeon E. Baldwin, William Hamersley, Frederic B. Hall, and Samuel O. Prentice —all Republicans, except Baldwin and Hamersley, Democrats.

CONNEMARA, First Baron. See BOURKE, ROBERT.

CONNOLLY, JAMES B., an American writer, whose volume of sea stories, *Out from Gloucester,* was prominent among the publications of 1902, was born in Boston, Mass., October 28, 1868, and received his early education in the Boston public schools. After additional study, in engineering, at the Lawrence Scientific School of Harvard University, he worked from 1890 to 1895 with the United States Engineer Corps engaged on river and harbor improvements at Savannah, Ga. At the outbreak of the Spanish-American war he enlisted in the Ninth Massachusetts infantry, a volunteer regiment, and took part in the siege of Santiago. From 1898 to 1901 he was engaged as reporter and correspondent for various newspapers, and in 1901 began contributing to magazines. Mr. Connolly is the son of a New England skipper and lived many years in the Gloucester he describes, and his sea-tales, despite the technicalities of their nautical phraseology, have won a wide popularity for their freshness and vigor. His other published book is a story for boys, entitled *Jeb Hutton* (1902).

CONSTANT, JEAN JOSEPH BENJAMIN-, a French painter, died in Paris, May 26, 1902. He was born in Paris, June 10, 1845. He studied at the Ecole des Beaux Arts, and, as a pupil of Cabanel, first exhibited at the Salon in 1869 ("Hamlet and the King"), and, after visits to Morocco and the Levant, found his *métier* in Oriental subjects, brilliant in color and frequently colossal in dimension. These

include: "Moroccan Prisoners" (1875); "The Entrance of Mahomet II. into Constantinople, May 29, 1453," a canvas of heroic size, first hung in 1878 at the Exposition Universelle; and "The Last Rebels" (1880), generally esteemed his best work, and purchased by the State for the Luxembourg. From 1880 he painted chiefly portraits and mural decorations, among the latter, "Literature," "The Sciences," and "The Academy of Paris," panels for the New Sorbonne (1888). Several of his portraits of well-known Americans are in private collections in the United States. His "Justinian in Council" (1886) is owned by the Metropolitan Museum of New York City. He was the recipient of numerous medals and decorations, and was made an officer of the Legion of Honor in 1894. His advice to pupils was succinctly given: "Study nature and the old masters; go to the Louvre; and work, work, work!"

CONSUMPTION. See TUBERCULOSIS and CHARITY ORGANIZATION.

COOKE, LORRIN ALANSON, ex-governor of Connecticut, died August 11, 1902, at Barkhamsted, in that State. He was born April 6, 1831, in New Marlboro, Mass., was educated at the academy in Norfolk, Conn., and for a few years taught school and worked on a farm in Colebrook, Conn. He became a member of the State legislature at the age of twenty-five, was State senator in 1882 and 1883, was twice chosen lieutenant-governor, and was governor from 1895 to 1897.

COOPER, THOMAS SIDNEY, an English artist, at the time of his death the oldest member of the Royal Academy, died at Harkledown, England, February 7, 1902. He was born in Canterbury, September 26, 1803, and obtained his artistic training as a pupil of the Royal Academy, and in Brussels under Verboeckhoven. In 1833 he entered his first exhibits at the Royal Academy, of which he was elected an associate in 1845, and full academician in 1867. His most considerable achievements were in landscape and animal—particularly cattle—studies. For some of his animal subjects, F. R. Lee supplied the landscapes. Prominent among his works are: "Cattle at Pasture" (1843), "Snowed Up" (1867), "Passing Showers" (1870), and "In the Rob Roy Country" (1885). In 1882 he presented to Canterbury the Sidney Cooper Gallery of Art. He published the autobiographical *My Life* (1890). From 1833 he exhibited at the Academy consecutively for sixty-seven years.

COOPER UNION FOR THE ADVANCEMENT OF SCIENCE AND ART, New York City, founded by Peter Cooper, and chartered in 1857. The forty-third annual report, submitted May 31, 1902, shows a revenue and expenditure of $93,530.25 and $99,723.94, respectively, leaving, with a balance from the previous year, $1,893.07 to the credit of the institution. Of the expenditure $10,000 was for the reorganization of the classes and for the enlargement of the laboratories. The special endowments appearing in the balance sheet, amounting to $2,133,159.30, consist of gifts and bequests, which, either by the terms of the original gift or by resolution of the board of trustees, are to be kept permanently invested and the income only made available for outlay. An expenditure of $500,000 on the reconstruction of the building does not appear in the financial exhibit because of the fact that the entire expense of this work was defrayed by Edward Cooper, Sarah A. Hewitt, and Abram S. Hewitt, and is not included in the list of assets or endowments. Other gifts and assignments of funds of the Cooper family, supplemented by the gift of $250,000 from a friend of the institution whose name at his request is not made known, have raised the endowment fund in the aggregate to over $2,100,000, producing an income of at least $90,000 a year, a sum that apparently justifies the trustees in devoting the entire building to educational purposes. During the year the number of pupils in the art schools, schools of science, stenography, typewriting, and telegraphy, was 2399; the number of visitors to the reading room and library 499,602, to the museum, 1582; attendance upon the free public lectures in the great hall, (estimated) 128,000; attendance in the small hall on lectures in ethics, literature, and political science, 20,000; so that during the year some 631,583 persons availed themselves of the various privileges of the institution. An interesting and successful feature of Cooper Union is its course of lectures in the great hall of the institute, in co-operation with Columbia University and the People's Institute. The officers in 1902 were: President, Edward Cooper; secretary, Abram S. Hewitt; treasurer, Edward R. Hewitt.

COPPER. The year 1902 was noteworthy in many respects for the copper industry. An attempt on the part of the largest producer in the United States to maintain prices at a high level in the face of a decreasing demand resulted disastrously; when the accumulation of stocks came into the market, the prices fell off rapidly and soon reached the low mark of 1898. There were temporary reactions toward a higher level from time to time, but the average price for the entire year was less than 12 cents per pound, as compared with over 16 cents in 1901. Notwithstanding the unsatisfactory trade conditions, the mining industry made considerable progress. In the Lake Superior region there was a very large increase,

which came mostly from new mines that will be a permanent factor in the industry. The possibilities of this region, first opened in 1844, are still enormous. The Montana and Arizona mines made little advance, but Utah, California, and some of the other copper-mining States added materially to their output of 1901. The consumption of copper, both at home and abroad, was commensurate with the increased production. All of the industries which use the metal in large quantities, especially the electrical industry, enjoyed unusual prosperity. A noteworthy feature of the trade was the increased importation of copper ores and crude copper for smelting and refining in this country; the material came from Canada, Mexico, Chile, and even from Australia. The output of copper in the United States in 1902 is estimated by *The Engineering and Mining Journal* at 670,000,000 pounds, in addition to which there was a production of about 100,000,000 pounds from foreign ores. The imports in metallic form were 103,129,568 pounds, and the exports 354,668,849 pounds. The output for 1901, as reported by the Division of Mining and Mineral Resources of the United States Geological Survey, was as follows:

	Pounds.		*Pounds.*
Arizona	130,778,611	Utah	20,116,979
California	33,667,456	Wyoming	2,698,712
Colorado	9,801,783	Other States	6,860,039
Idaho	480,511	Lead desilverizers, etc	531,530
Michigan	156,289,481		
Montana	229,870,415	Total domestic copper	602,072,519
Nevada	593,608	From imported ores, etc	64,000,000
New Mexico	9,629,884		
South Dakota	753,710	Total domestic and foreign	666,072,519

Rich copper mines have been opened recently in Mexico, and there is every prospect that this country will soon make very important contributions to the world's supplies. New discoveries of copper ores were reported late in 1902 from the Copper River district of Alaska.

COREA, a constitutional monarchy occupying the peninsula between the Yellow Sea and the Sea of Japan. The capital is Seoul.

Area and Population.—The estimated area is 82,000 square miles, and the estimated population about 10,500,000. The estimated population of Seoul in 1902 was 193,606. The foreign inhabitants in August, 1902, numbered about 24,740, of whom 19,106 were Japanese, about 5000 Chinese, 275 Americans, about 140 English, 96 French, 43 Germans, and 30 Russians. Aside from the worship of ancestors, religion has small place in the lives of the people. The number of Roman Catholics at the end of 1901 is stated at 55,806 and of Protestants 27,980.

Government and Finance.—In 1902 the monarch was Yi Heui, who succeeded to the throne in 1864 and assumed the title of emperor on October 15, 1897. The central government is divided into ten ministries of state; all of the ministers have a seat in the cabinet, which, with the assent of the emperor, exercises both legislative and executive power. The corrupt system of administration was renovated and reorganized after the treaty of Shimonoseki was concluded in May, 1895, but there persists a strong reactionary tendency. The regular army, which since 1896 has noticeably increased in efficiency, numbers about 17,000. The men, who are recruited by voluntary enlistment, are said to be well paid and seemingly are excellent soldiers. Revenue accrues largely from the land tax. For 1901 the estimated revenue and expenditure were 9,079,456 yen and 9,078,682 yen, respectively; for 1902, 7,586,530 and 7,585,877, respectively. The yen is worth 49.8 cents. A currency difficulty became serious in 1902 through the government's flooding the country with a nickel coinage, the intrinsic value of which was only one-eighteenth of its face value, while there was no gold or silver redemption fund.

Industries and Commerce.—Agriculture, the principal industry, is retarded by primitive methods and insufficient means of communication. The leading crop is rice, and others of importance are beans, various cereals, ginseng, and tobacco. Gold is produced, and there is promise of other mineral exploitation. Foreign trade passes through the treaty ports, which since 1899 have been nine in number. By far the largest import is cotton goods; other imports are kerosene, metal wares, and silk goods. In years of normal production the largest export of merchandise is rice, followed by beans and ginseng. For 1898 the total trade, foreign and coast, was reported at 24,702,237 yen; 1900, 27,490,388 yen; 1901, 37,047,274 yen. In the last named year the foreign trade in merchandise amounted to 14,696,470 yen for imports and 8,461,949 for exports; in addition, precious metals and specie imported amounted to 2,446.014 yen, and exported 6,079,508 yen. The gold export has steadily increased from 1,390.412 yen in 1896 to 4,993.351 in 1901. The other leading exports in 1901 were: Rice, 4,187,000 yen; beans and peas, 1,890,000; hides, 650,000; red ginseng, 515,000. Japanese interests in Corean trade are constantly increasing.

Communications.—A railway under Japanese management is in operation between Seoul and the port of Chemulpo, 26 miles. The construction of a railway was begun on August 20, 1901, by a Japanese-Belgian syndicate, which intends to carry the line from Yong-Gong-Po, across the river from Seoul, to Fusan, 287 miles distant on the southeastern coast. On the paid-in capital the Japanese government has granted a 6 per cent. guaranty for fifteen years. In 1901 a French company contracted with the government to build a railway from Seoul to Wi-ju, about 350 miles distant on the northern frontier. It was believed that the loan of 5,000,000 yen arranged for by the government with a French syndicate on April 16, 1901, was for construction on this railway, but in March, 1902, the government declared the contract void through lapse of time and for other causes. On May 4, the Seoul-Song-do section of the railway was begun under the direction of M. Lefèvre, the chief engineer. There are reported 1696 miles of telegraph lines.

History in 1902.—Although foreign influence, especially Japanese, has started the march of progress in Corea, the position of the country, political and economic, is unsettled. Early in January, revelations were made of embezzlements aggregating some 10,000,000 yen, misappropriated by about eighty officials during the six years preceding. The officials held that the money was taken in lieu of unpaid salaries, or to cover expenses incurred in the performance of their duties, but many were condemned and numerous executions were ordered by the emperor. Heavy taxation, aggravated by extortions of the collectors, provoked riots and even more serious outbreaks in various localities during the summer of 1902. There were also anti-foreign demonstrations. Corea continues a source of irritation and a potential cause of far more serious trouble to Japan and Russia. During the year there appeared to be a decline of Russian prestige. In February, against Russian protest, the Japanese Kato was appointed councilor of the court. Since Japan had been permitted to lay telegraphic cables along the Corean coasts, Russia, also in February, requested the privilege of constructing telegraph lines to connect her system at Wönsan (Yuen-san). Corea not only refused, but sent forces to destroy the lines already constructed across the frontier. And when pressed for compensation for this demolition, the Corean foreign minister refused to treat with the Russian minister, M. Pavloff. Although the latter had notified Corea that any attempt to interrupt the continuation of the telegraph line from Vladivostok to Wönsan would be followed by unfriendly relations between the two governments, Russia apparently yielded and proposed another route. A severe blow to Russian prestige was the Anglo-Japanese treaty of alliance of January 30, 1902, followed by the convention of July 25. Russia doubtless fears, through some circumvention of the agreement of 1900, the establishment by Great Britain and Japan of a naval station in southern Corea that would cut off Vladivostok from Dalny. What may be regarded as a corollary of the Anglo-Japanese alliance was the Anglo-Japanese-Corean agreement, reported from Seoul on July 25. According to this agreement, concluded by the British and Japanese ministers at Seoul and the Corean emperor's special adviser, who is a Japanese, Great Britain and Japan mutually guaranteed Corea's independence and pledged her their assistance in the settlement of any important questions, internal or foreign, that might arise; on her part, Corea promised that no foreigners should be appointed to the state service, that the government should immediately take measures, including the enlargement of the army and navy, for safeguarding its territorial integrity, and that foreign loans should be offered for subscription only in Great Britain, Japan, and the United States.

CORN. Despite an abnormal season, which it was feared would prove quite unfavorable to this crop, the production for 1902 in the United States reported by the department of agriculture, was one of the largest recorded. A portion of this apparent increase was attributable to a readjustment of the total acreage on which the estimates are made, in accordance with the census returns. These returns showed a greater area than had been taken into account by crop-reporting authorities, so that an arbitrary increase was made necessary to correct this error. The total production of corn reported for 1902 was 2,523,648,312 bushels, as compared with 1,522,519,891 bushels, the official figure for 1901, which was unusually low. The statistics given on the following page for 1902 are those of the United States Department of Agriculture.

The quality of the crop of 1902 was inferior over a quite important section of the corn belt. This was due to frost in the northern portion of the belt, and to continued rains, making the corn soft and causing it to mold. It has been reported that nearly 50 per cent. of the crop in Iowa was soft and not fit to market. This was fed on the farms to cattle and hogs, which do very well upon it. The average value of the corn crop per acre in 1902 was $10.81, as compared with $10.09 in 1901 and $9.02 in 1900. The range for the past ten years has been from $6.06 in 1896 to

States and Territories.	Corn.				
	Acreage.	Yield Per Acre.	Production.	Price Per Bush.	Total Value.
	Acres.	*Bushels.*	*Bushels.*	*Cents.*	*Dollars.*
Maine	14,063	21.7	305,167	74	225,824
New Hampshire	28,761	23.3	670,131	73	489,196
Vermont	57,718	21.8	1,258,252	68	855,611
Massachusetts	46,670	31.3	1,460,771	74	1,080,971
Rhode Island	10,322	28.4	293,145	78	228,653
Connecticut	52,434	31.5	1,651,671	74	1,222,237
New York	645,230	25.0	16,130,750	67	10,807,602
New Jersey	292,770	34.5	10,100,565	56	5,656,316
Pennsylvania	1,486,383	36.1	53,658,426	58	31,121,887
Delaware	187,134	28.0	5,239,752	49	2,567,478
Maryland	628,982	32.4	20,379,017	51	10,393,299
Virginia	1,879,348	22.0	41,345,656	52	21,499,741
North Carolina	2,706,682	13.9	37,622,880	60	22,573,728
South Carolina	1,825,837	10.4	18,988,705	69	13,102,206
Georgia	3,899,331	9.0	35,093,979	73	25,618,605
Florida	602,400	8.6	5,180,640	77	3,989,093
Alabama	2,764,717	8.4	23,223,623	67	15,559,827
Mississippi	2,144,225	11.5	24,658,588	61	15,041,739
Louisiana	1,342,781	12.5	16,784,762	66	11,077,943
Texas	5,539,187	8.1	44,867,415	66	29,612,494
Arkansas	2,378,171	21.3	50,655,042	49	24,820,971
Tennessee	3,337,047	21.9	73,081,329	47	34,348,225
West Virginia	774,061	26.5	20,512,616	54	11,076,813
Kentucky	3,336,791	27.0	90,093,357	42	37,839,210
Ohio	3,200,224	38.0	121,608,512	42	51,075,575
Michigan	1,333,099	26.4	35,193,814	52	18,300,783
Indiana	4,520,637	37.9	171,332,142	36	61,679,571
Illinois	9,623,680	38.7	372,436,416	36	134,077,110
Wisconsin	1,504,445	28.2	42,425,349	50	21,212,674
Minnesota	1,483,621	22.8	33,826,559	40	13,530,624
Iowa	9,302,688	32.0	297,686,016	33	98,236,385
Missouri	6,775,195	39.0	264,232,605	33	87,196,760
Kansas	7,451,693	29.9	222,805,621	34	75,753,911
Nebraska	7,817,962	32.3	252,520,173	30	75,756,052
South Dakota	1,577,398	18.9	29,812,822	41	12,223,257
North Dakota	82,700	19.4	1,604 380	45	721,971
Montana	3,714	22.0	81,708	72	58,830
Wyoming	2,384	19.8	47,203	59	27,850
Colorado	115,697	16.5	1,909,000	59	1,126,310
New Mexico	36,909	22.0	811,998	78	633,358
Arizona	7,502	20.2	151,540	101	153,055
Utah	10,810	20.1	217,281	67	145,578
Nevada	.....	.....	.....	....	.....
Idaho	5,142	24.7	127,007	62	78,744
Washington	10,014	23.0	230,322	65	149,709
Oregon	17,045	23.4	398,853	66	263,243
California	60,300	30.5	1,839,150	77	1,416,146
Oklahoma	1,569,831	25.8	40,501,640	39	15,795,640
Indian Territory	1,549,878	24.9	38,591,962	43	16,594,544
United States	94,043,613	26.8	2,523,648,312	40.3	1,017,017,349

$10.81 in 1902. Naturally the value per acre varies widely in different States—in 1900 from $4.48 in South Carolina to $21.44 in Rhode Island.

The census reports have brought out some interesting figures as to the high yield of corn in Chester County, Penn.; Douglas and Edgar counties, Ill., and Clinton, Howard, and Tipton counties, Ind., which exceeded all other counties in the census year. These average yields ranged from 50.9 to 54.1 bushels of shelled corn per acre, which, considering the large acreage represented, is quite remarkable.

The world's corn crop in 1900, the latest year for which final quantitative estimates have yet been reported, was 2,822,900,000 bushels, of which 2,233,050,000 bushels were grown in North America, and 2,105,103,000 bushels of the latter amount in the United States. Nearly 75 per cent. of the total corn crop of the world, therefore, was credited to the United States, Austria-Hungary ranking next with less than 6 per cent. The remainder was distributed among seventeen different countries. The following data are available as to the corn crop of 1901 in foreign countries: Hungary 127,390,000 bushels, Austria 17,535,500, Roumania 116,945,000, Italy 95,176,500, Argentina 75,000,000, and Uruguay 5,576,000. The 1902 crop was estimated to be much smaller than that of 1901 in Hungary, Croatia-Slavonia, Roumania, Bulgaria, and Italy. In Roumania and Bulgaria the crop suffered greatly from drought and was estimated at only from 40 to 60 per cent. of the production in 1901. The official estimate for Italy is 67,395,000 bushels, about three-fourths of the normal crop, and the smallest production since 1897. The Hungarian minister of agriculture has estimated the world's crop for 1902 at 2,970,000,000 bushels. The short corn crop in this country in 1901 affected the exports not only of that grain but also

of oats, the other important feed grain, and in a less degree those animal products dependent on the corn crop. The exports of corn from the United States during the fiscal year ended June 30, 1902, were reported as follows:

Countries.	Bushels.	Value.	Countries.	Bushels.	Value.
United Kingdom	10,030,459	$6,177,299	Denmark	1,267,434	$683,008
Germany	4,862,898	2,772,183	Belgium	933,930	546,320
Canada	3,209,677	1,895,773	Other countries	2,095,082	1,379,174
Netherlands	3,023,382	1,854,329			
Cuba	1,213,690	877,587	Totals	26,636,552	$16,185,673

The exports for the preceding fiscal year (1901) amounted to 177,817,965 bushels, valued at $82,527,983. The imports of corn in the fiscal year ending June 30, 1902, from Mexico, Canada, and British South America, amounted to 18,278 bushels, valued at $13,418, as compared with 5169 bushels, valued at $3418 the previous year. Exports of corn oil increased from 2,646,560 gallons in 1898 to 4,808,545 gallons in 1901, the latter valued at $1,831,980. There has been a corresponding increase in corn oil cakes, most of which go to France. A recent census bulletin gives the value of the by-products from corn in starch manufacture at 20 cents per bushel of corn. The production of these by-products and of gluten meal and feed from the glucose factories has now reached enormous proportions, largely finding a ready sale at home for feeding live stock. The most important investigations on corn continue to centre around the breeding or selection of corn to improve the yield or composition. Much progress has been made in this direction, which is beginning to bear fruit in a practical way. Starting in 1896 with a corn containing 10.92 per cent. of protein (about the average), the Illinois Station has secured by selection corn with as high as 16.12 per cent. of protein. Similarly the fat has been increased from 4.7 to 7.4 per cent. The value of this corn richer in oil has increased, according to the statements of glucose refineries, 4 cents per bushel. The increased value for feeding of the corn richer in protein is even greater.

The census reports give the first data collected as to the use of corn stalks for feeding. The amount used in the census year is calculated at 4,759,369 tons. This, however, represents but a small proportion of the total amount, as it has been estimated that the average production in the corn belt States is not far from sixty million tons. This, it has been stated, would furnish about thirty-seven million tons of pulp stock from the stalks and twelve million tons of pith, which can be produced at less cost and sold cheaper than any other bleached stock known.

CORNELL UNIVERSITY, Ithaca, N. Y., founded 1868. The faculty in 1902 numbered 367, and the student enrollment was 3290, including the medical college in New York, an increase of 300 over the preceding year. The gross income was $1,029,359, including a gift for the Rockefeller Hall of Physics, and other miscellaneous gifts, amounting together to $365,935. Among the important faculty changes were the withdrawal of Dean White, appointed to the chair of German at Harvard, and the resignation of Professor Trowbridge and the appointment of I. V. Van Pelt in his place, as professor of architecture. H. H. Whig was appointed professor of animal industry and dairy husbandry, and P. A. Fish, professor of comparative physiology and pharmacology. The administration of discipline was put in the hands of a committee consisting of the dean and four professors. The university library was enlarged during the year by 12,020 volumes, and 2600 pamphlets, making a total of 261,852 volumes, and 43,000 pamphlets. The productive funds rose to $7,577,633. Sibley College was enlarged by the erection of the central building. The new Stimson Hall, the gift of Dean Sage, is intended for the departments of physiology, anatomy, and histology. The chief problems of administration are those connected with the constantly increasing attendance. A new building for the arts department, a hall for physics, a laboratory of experimental engineering, a hall for the college of forestry, and a large building for physical training and social intercourse and for great university functions, are among the most pressing requirements. In anticipation of the erection of many of these buildings, the trustees have provided for the preparation of a plan for the development of the campus, by which the random selection of sites shall be avoided and the natural beauties of the grounds preserved. See Psychology, Experimental (paragraph Cornell University).

CORNU, Alfred, a French physicist, died in Paris April 13, 1902. He was born March 6, 1841, at Chateauneuf, and was educated at the Ecole Polytechnique and Ecole de Mines, becoming an engineer in 1866. In the following year he was appointed professor of physics in the Ecole Polytechnique. His first experiments of importance were the study of the velocity and propagation of light by a method similar to that of Fezeau, but involving greater refinements, and enabling him to

secure a much more accurate result. He also studied the spectrum and determined the wave lengths of the hydrogen rays, as well as investigating the ultra-violet end by original methods. The science of meteorological optics was enriched by his researches, which included a study of atmospheric absorption, and the explanation of the twilight glow as due to diffraction. He was the inventor of several important physical instruments, among which are the optical lever and a perfected Jellett prism for polarizing light. Professor Cornu contributed many papers on light and electricity to the *Comptes Rendus* and the *Journal de Physique,* and presided at the sessions of the International Congress of Physicists held in Paris in 1900. He was at different times a member of the Bureau des Longitudes, and the International Commission of Weights, and president of the Académie des Sciences and the Société de Physique. He was elected a member of the Royal Society of London in 1884, having previously (1878) received its Rumford medal for his researches on light.

CORONA OF THE SUN. See ASTRONOMICAL PROGRESS.

CORPORATIONS. See FINANCIAL REVIEW, STRIKES, TRUSTS, and UNITED STATES STEEL CORPORATION.

CORRIGAN, MICHAEL AUGUSTINE, an eminent American Roman Catholic prelate, died in New York City, May 5, 1902. He was born at Newark, N. J., August 13, 1839, and graduated at the Mount St. Mary's College of Emmetsburg, Md., in 1859. He was one of twelve students with whom the American College at Rome was opened, was ordained priest in 1863, and from 1864 to 1868 was professor of dogmatic theology and sacred scriptures in the Diocesan Seminary of the Seton Hall College at South Orange, N. J. In 1868-73 he was president of the college, and in 1873 was appointed to the diocese of Newark. During his administration there was a marked increase in the number of new churches founded, while charitable work was greatly extended, and religious communities were established. In 1880 he became titular archbishop of Petra, and coadjutor with right of succession to the archbishop of New York, Cardinal McCloskey. In that dignity he conducted the chief part of the work of the archdiocese. He succeeded to the archbishopric of New York in 1885, and in the year following received the *pallium.* He made his archdiocese one of the most important and extensive in the Roman communion. He was a scholar of high and varied attainment, and, through his numerous beneficent activities, became, despite a characteristic unobtrusiveness, one of the best-known of American Roman Catholics. His administration was somewhat unfortunately disturbed by the long controversy between the Church and the late Dr. Edward McGlynn, the well-known advocate of the economic theories of Henry George.

COSTA RICA, a Central American republic and the most southern country of the North American continent. The capital is San José.

Area and Population.—The area has been estimated at 23,000 square miles. The estimated population in 1901 was 311,444. Most of the inhabitants of Spanish descent dwell in the towns; the rural population is largely mestizo. Immigration, though encouraged by the government, is small. The State religion is Roman Catholicism. Public education is free and actually compulsory.

Government.—The executive authority is vested in a president, who is elected for a term of four years by indirect vote and is assisted by a cabinet. The president in 1902 was Señor Asunción Esquivel. The legislative power devolves upon a chamber of representatives. The regular military and naval forces are inconsiderable.

Finance.—The monetary standard is gold, and the unit of value (since July 15, 1900) the colon, worth 46.5 cents. The revenue, which is derived chiefly from customs and excise, and the expenditure, of which the largest items are for administration and the internal debt, amounted in the fiscal year 1900 to 8,228,292 colones and 7,448,120 colones respectively, and in 1901 to 8,700,833 colones and 9,319,192 colones respectively. In 1901 the foreign debt was £2,080,000 ($10,122,320); the internal debt, for the most part floating, was 7,759,713 pesos in 1902. In the payment of national obligations the government regards the peso, the former monetary unit, as of equal value with the colon.

Industries, Commerce, etc.—The leading crops are coffee and bananas. The total imports and exports, including coin and bullion, for the fiscal year 1900 (in gold pesos worth about 97.3 cents) were 6,084,898 and 6,321,196 respectively; for 1901, imports 4,411,402, and exports 5,792,679. The leading imports are cottons and other textiles and iron and steel goods. The percentages of the imports of merchandise (excepting live stock) by countries for 1900 and 1901 respectively are: United States, 46.20 and 46.77; Great Britain, 27.30 and 21.83; Germany, 13.59 and 13.50; France, 5.94 and 5.43. The coffee export in the fiscal year 1900 amounted to 16,218,954 kilogrammes valued at 3,800,188 pesos; in 1901, 16,707,119 kilogrammes valued at 2,823,-

291 pesos. Other important exports in the latter year were: Bananas, nearly 4,000,000 bunches valued at 1,741,570 pesos; precious metals, 721,548 pesos; cedar and mahogany, 229,252 pesos; hides, 109,849 pesos. There are 162 miles of railway.

A New President.—On February 17, 1902, Señor Asunción Esquivel was elected president to succeed Señor Rafael Yglesias, and on May 8 was inaugurated for the four-year term. Señor Yglesias became vice-president, but being severely attacked by the press he resigned, and was succeeded by Señor Ricardo Jiminez. The most important feature of the administration of Señor Yglesias, who had served two terms, was the adoption of the gold standard, which was begun by the act of October 26, 1896, and consummated with the issuance of the new gold coins on July 16, 1900. President Esquivel, who is regarded as an able lawyer, appointed the following cabinet: Minister of foreign affairs, justice, worship, and public instruction, Señor Leonidas Pacheco; interior, Señor Manuel J. Jiménez; finance and commerce, Señor Cleto Gonzáles Víquez; war and marine, Señor Tobías Zuñiga.

COTTON. As three-quarters of the world's production of cotton comes from the United States, it follows that American influences must prevail in the world's markets of this commodity although the remaining production has its effect in steadying prices and making good possible deficiencies. There is, however, to be noted the fact that the domestic consumption of cotton in the United States is increasing rapidly, and Europe must therefore consider that although the United States is producing large crops and increasing its acreage, yet its mills, particularly those in the Southern States, are using more of the raw material; and the indications are that with the large number of new mills in course of erection and projected the domestic consumption will increase rather than diminish as years go on. Realizing this, the various European colonial nations are making every effort to promote the cultivation of cotton in their dependencies. During 1902 attempts were made to raise cotton in sections of Africa where its cultivation had never before been carried on. Important experiments with this object were undertaken in Togoland and German East Africa under the direction of the German committee on colonial commerce, while in Lagos, Nigeria, and other colonies on the western coast of Africa experts sent out by British spinners and manufacturers have been considering the prospects for cotton growing, comparing conditions with those of Egypt, where cotton is raised with considerable success. Samples produced by experimental cultivation on a small scale in African colonies have been sent to Germany, where they have been examined with interest. The production of cotton in colonial countries and the increase of the Brazilian and Russo-Asian crops are matters to which European manufacturers must turn their attention in view of the high prices demanded for American cotton and the increased domestic consumption already mentioned.

For the season of 1901-02 the cotton production of the four leading countries was estimated at about 15,000,000 bales of 500 pounds each, apportioned as follows:

Countries.	Per Cent.	Bales.	Countries.	Per Cent.	Bales.
United States	73.04	10,701,000	Egypt	8.36	1,531,000
India	16.93	3,100,000	Brazil	1.67	306,000

Comparing the foregoing figures with those for 1869-70 it is seen that the quota of the United States increased from 56.44 per cent. (3,379,000 bales) to 73.04 per cent., and that Egypt increased from 5.71 per cent. (342,000 bales) to 8.36 per cent. On the other hand, the quota supplied by India is but 16.03 per cent., as against 33.15 per cent. (1,985,000 bales), while Brazil's production fell from 4.70 per cent. (281,000 bales) to 1.67 per cent. Looking now at the consumption of the 1901-02 crop it is found that 4,018,000 bales (37.27 per cent.) were taken by mills in the United States, while in 1869-70 the domestic consumption was but 777,000 bales, or 25.60 per cent. Great Britain and France, however, show a decrease from 48.6 per cent. to 28.26 per cent. in the case of the former, and from 11.43 per cent. to 6.37 per cent. in the case of the latter. In the same interval the aggregate amounts taken by the remaining European countries increased from 11.57 per cent. to 27.50 per cent. These figures are given by Mr. Theodore H. Price, the well-known cotton authority, and are interesting as showing the development of the cotton industry, particularly in the United States. They differ somewhat, however, from those given by the *Commercial and Financial Chronicle* in its cotton summary for the year ending August 31, 1902. These are as follows in bales of 500 pounds:

World's Cotton Production.

Countries.	1900-01	1901-02	Countries.	1900-01	1901-02
United States	10,218,000	10,380,380	Brazil, etc	150,000	245,000
India and East Indies	2,200,205	2,300,000			
Egypt	1,063,758	1,225,000	Totals	13,631,963	14,150,380

WORLD'S ANNUAL COTTON CONSUMPTION.

(In bales of 500 pounds.)

COUNTRIES.	1901-02	1900-01	COUNTRIES.	1901-02	1900-01
Great Britain	3,352,000	3,256,000	India and East Indies	1,322,000	1,059,764
Continent	4,732,000	4,576,000	Japan	728,000	631,728
			Canada	119,600	99,822
Totals Europe	8,084,000	7,832,000	Mexico	30,700	31,147
United States, North	2,207,175	2,150,000	Totals, India, etc.	2,200,800	1,822,461
United States, South	1,830,157	1,576,671	Other countries, etc.	29,524	21,715
Totals United States	4,037,332	3,726,740	Totals, world	14,351,156	13,402,916

Considering now the American production for 1902 we find that the prosperous conditions existing in the cotton trade led to the planting of a large area, estimated by the Department of Agriculture at 27,878,000 acres, an amount slightly in excess of that of the previous year (27,532,000 acres), and about 3,000,000 acres in excess of the average. This crop experienced excellent weather conditions, especially the rainy winter necessary to start the plants, and everything went well until June, when droughts came on. In Texas a severe drought was experienced in August, which caused the price to rise from 7.56 to 8.92 cents a pound, but the effects were not so bad as anticipated. Later in the year poor weather again occurred so that the price steadily rose, and on December 31, 1902, the closing for the year was 8.875 cents.

As regards the size of the crop of 1902-03 opinions differed at the end of the year. The crop of 1901-02, estimated at about 10,700,000 bales, was marketed at an average of $41.01 a bale. The crop of 1902-03 was of about average size, being variously estimated at from 10,250,000 to 11,000,000 bales. According to the United States Census, which obtained returns from the various ginneries in the South, the quantity of 1902 cotton ginned up to and including December 13 was as follows:

STATES AND TERRITORIES.	Active ginneries reporting, number.	Cotton ginned to and including Dec. 13 (growth 1902), bales.	Ginners' estimate quantity to be ginned from this crop after Dec. 13, bales.	Canvassing agents' estimate per cent. crop ginned to Dec. 13.
Alabama	3,889	896,994	65,168	94.2
Arkansas	2,510	768,861	149,715	85.1
Florida	284	54,443	6,598	87.9
Georgia	5,046	1,376,850	66,714	95.4
Indian Territory	428	372,042	52,831	87.2
Kentucky	3	1,027	150	87.3
Louisiana	2,145	670,485	159,908	83.2
Mississippi	4,276	1,135,557	225,150	82.8
Missouri	59	39,185	3,115	94.3
North Carolina	2,683	517,068	28,232	94.9
Oklahoma	218	163,190	29,568	84.5
South Carolina	3,187	863,989	44,754	96.4
Tennessee	815	272,135	34,409	88.8
Texas	4,542	2,167,472	188,968	91.7
Virginia	109	12,537	2,491	82.0
United States	30,194	9,311,835	1,057,771	90.2

On this basis the crop would amount to 9,996,300 bales of a gross weight of 500 pounds, acording to the ginners, or 9,954,106 such bales according to the agents of the census It must be stated here that these figures were not the same as those given by the statistician of the Department of Agriculture, who, in December, announced the actual growth for the year as 10,417,000 bales of an average net weight of 490.7 pounds. Commercial opinions seemed to favor the latter figures, but considerable dissatisfaction was expressed at the discrepancies in the statements, and there was criticism of both departments.

Looking now at the use made of the crop of 1901-02, we find that in addition to the amount retained for domestic consumption Great Britain took 3,046,000 bales, France 751,000 bales, and the other continental countries 2,964,000 bales. The activity in manufacturing is shown by the number of spindles, and the following table, giving the statistics at the close of the year ending August 31, 1902, shows the increase in spindles in the various countries.

NUMBER OF SPINDLES.

	1900-01	1901-02		1900-01	1901-02
Great Britain	46,100,000	46,700,000	India and East Indies	5,006,936	5,300,000
Continent	33,350,000	33,500,000	Japan	1,350,000	1,500,000
			China	600,000	600,000
Total, Europe	79,450,000	80,200,000	Total, India, etc.	6,956,936	7,400,000
United States, North	15,050,000	15,150,000			
United States, South	5,819,835	6,408,974	Canada	690,000	690,000
			Mexico	500,000	500,000
Total, United States	20,869,835	21,558,974	Total, other	1,190,000	1,190,000
			Total, world	108,856,771	110,348,974

The increase in cotton manufacturing in the southern States will be seen from the table. The larger part of the new cotton mills are being located in the South so as to be near the raw material and perhaps to secure the advantages of cheap and less thoroughly organized labor. In 1901-02 there were 570 mills in the South with 142,053 looms, as compared with 531 mills with 122,902 looms in the previous year. A large number of new mills were under construction, while extensive additions to old mills were being made.

Conditions in the manufacturing business in 1902 were good, for the most part, in America, and the mills were fairly active though there were complaints that the business was not sufficiently remunerative. In the spring there were demands for increased wages and many of the northern mills voluntarily increased wages by amounts varying from 6 to 10 per cent. In the South matters did not go so smoothly, and in April there was a strike at Augusta, Ga., with the result that the remaining mills in that city, as well as a number of mills in South Carolina, instituted a lock-out which involved about 10,000 employees. This was settled towards the end of May by the return of the operatives to work, though in certain instances later there were increases in wages.

In England the necessity of using an automatic loom was being recognized in 1902 and several new inventions were being considered, while the Northrup loom, which plays so important a part in American practice, was to be tried on a large scale. The cotton industry is not in a flourishing condition in England, and the works, which contain about 750,000 looms, are said to yield no substantial profits. In France, where conditions are somewhat more favorable than elsewhere in Europe, there was some slight activity during the year, but in Germany and Austria, owing to the general depression, the year's business was not good. In Italy there were somewhat better conditions than in the North, and the industry, especially on the export side, made steady progress. It was the general opinion that in Europe the machinery for spinning was in excess of the demand, and this was shown in the reduced number of orders for looms received by Manchester machine works. In Japan the number of spindles and the consumption of cotton are steadily increasing, the latter reaching 728,000 bales in 1901-02. Of this 163,000 bales came from the United States, which is an increase over the previous year.

Exports from the United States.—As China is an important market for cotton fabrics, the export trade depends to a certain extent upon political conditions in that country. Thus the trade, which fell off over half during the disturbed times following the Boxer uprising, was restored to its normal proportions, and in the fiscal year 1901-02, 335,000,000 yards were shipped to China, as compared with 84,000,000 yards in the previous year, and 182,000,000 yards in 1899-1900. It is interesting to note that 630,000,000 yards were shipped to China from Great Britain in the year 1901-02, as compared with 371,000,000 yards in 1900-01. The United States exports during the calendar year 1902 were larger than ever before. The following table shows the export of plain and colored cotton goods for 1901 and 1902:

	1901		1902	
	Yards.	Value.	Yards.	Value.
Colored goods	133,351,821	$7,125,908	181,727,931	$8,838,724
Uncolored goods	243,882,139	12,759,286	343,788,978	18,030,589
Total cotton manufactures	376,233,960	$19,885,284	525,516,909	$26,869,313

These exports were shipped to the following more important markets.

Countries.	1901	1902	Countries.	1901	1902
	Yards.	*Yards.*		*Yards.*	*Yards.*
Chinese Empire	201,368,671	326,419,489	British Australasia	4,097,829	6,616,012
Africa	7,426,474	7,646,243	Philippines	1,300,382	6,366,099
Colombia	21,565,368	28,310,708	United Kingdom	9,542,127	5,586,787
British North America	8,328,218	11,950,425	Mexico	3,89..422	3,129,454
Central America and British Honduras	12,383,245	19,012,953	Cuba	4,470,542	3,530,775
Other West Indies, etc.	23,703,361	27,553,291	Venezuela	10,263,687	9,311,218
Brazil	5,445,878	9,017,024	Hongkong	528,233	266,830
British East Indies	7,603,983	13,202,065	Japan	668,822	351,987
			Other Asia and Oceania	32,900,064	26,044,874

From these figures it may be seen that there was an increase in the exports of cotton cloth in 1902 except to the last seven markets named. The exports from the United States of other manufactures of cotton were valued at $6,157,471 in 1901 and $6,405,594 in 1902; so that the total values of cotton manufactures exported in the two years were $26,042,755 and $33,274,907 respectively. The exports of cotton manufactures to the Chinese Empire are far greater than those to any other country, amounting to $10,349,379 in 1901 and $16,102,905 in 1902.

Cotton Culture.—The United States Department of Agriculture has announced that "the development of cotton resistant to wilt disease is now an assured fact, and has been taken hold of by the planters on a large scale. Large tracts of land in the Sea Island district of South Carolina which had been abandoned on account of this disease were planted the past year successfully with resistant strains of cotton, and good crops produced." The Bureau of Plant Industry has made many crosses of long-staple with upland varieties. "Several varieties of the ideal type desired have been produced, having larger bolls, very productive, with long, fine fibre, borne on smooth black seeds. The experiments of the past year show quite conclusively that these varieties can be made permanent." Satisfactory progress was also made in 1902 in securing varieties of cotton resistant to the Texas root-rot. The Georgia Experiment Station concludes from observations covering eight years that large bolls, large seed, and a high percentage yield of lint are closely related to the greatest value of the total product of lint and seed. Egyptian cotton is reported to have been successfully grown in southern Georgia, the yield being larger than that of short-staple cotton. The Cawnpore Experiment Station in India has found that American long-staple varieties can be successfully grown in northern India. In one of the cotton-growing districts of Bokhara the use of American cotton seed was found to increase the yield of cotton, as compared with the native seed. This increase was so marked that the government raised the tax or rent from one-third of the crop from native seed to one-half of the crop from American seed. The German government is conducting experiments in cotton growing in Togoland and German East Africa. Experts have pronounced samples of cotton from Togoland as good and promising. The first shipment of Egyptian cotton, consisting of four bales, arrived at Hamburg from German East Africa about the close of 1902. The product is of a brownish yellow color and the fibre is long and silky. It is reported that this cotton was grown under the direction of American experts engaged by the German government to instruct the natives in cotton culture. An important recent book on cotton culture is a general treatise entitled *Le Cuture du Cotonier*, C. Farmer, Paris, 1901.

COURT TENNIS. See Racquets and Court Tennis.

CREELMAN, James, an American author and war correspondent, published in 1902, *Eagle Blood,* a novel vividly portraying scenes in the making of the modern newspaper. This work added to his reputation gained by *On the Great Highway* (1901), a description of the experiences of a special correspondent. Mr. Creelman was born in Montreal, Canada, November 12, 1859. He entered the service of the New York *Herald* in 1877, and was later made editor of its London and Paris editions. As correspondent for the New York *World* he reported the Chino-Japanese war of 1894 and gained prominence by his description of the massacre at Port Arthur. He was similarly employed by the New York *Journal* during the Græco-Turkish war of 1897 and the Spanish-American war, and attained considerable distinction during the operations before Santiago by personally capturing the Spanish flag and commandant of the El Caney fort. He served also in the Philippines as a voluntary aide to General Lawton. In his various campaigns he was several times seriously wounded. He has interviewed Pope Leo, the King of Corea, King George of Greece, and other equally inaccessible personages. In 1902 he was the Washington editorial writer for the New York *Journal.*

CRETE, a Mediterranean island constituting an autonomous state under the suzerainty of Turkey. The capital is Canea.

Area, Population, Industries, etc.—The area is 3,326 square miles. Revised figures of the census of June 17, 1900, show that the inhabitants on that date numbered 310,362, of whom 271,585 were Greek, 31,955 Mohammedan, and 726 Jewish. There were 6096 foreigners. The Mohammedan population is chiefly in the towns of Candia, Canea, and Retimo. All the inhabitants speak Greek. In 1901 there were 321 communal schools with 35,540 pupils.

Agriculture, though the principal industry, is neglected. The chief product, olive oil, and soap are the leading exports. Imports and exports in the fiscal year 1899 amounted to 12,351,105 drachmai (19.3 cents each) and 6,600,198 drachmai respectively; in 1900, 11,076,055 and 5,590,436 respectively; in 1901, 14,448,000 and 7,286,000 respectively. The commerce is largely with Greece and Turkey. Railway construction is in progress.

Government and Finance.—By the constitution of April 28, 1899, executive authority is vested in the high commissioner, Prince George, second son of the King of the Hellenes. He, however, was appointed high commissioner (for a term of three years) by the Powers on November 26, 1898, assumed office on the 21st of the following month, and was reappointed December 15, 1901. He is assisted by a council. The legislative power devolves upon an assembly, mostly elective, in which Mohammedan representation is assured. Questions concerning foreign relations are determined by representatives of the four protecting Powers—Great Britain, Russia, France, and Italy—at Rome. Estimated revenue and expenditure for the fiscal year 1901 were 6,471,860 drachmai and 6,281,277 drachmai respectively; for 1902, 6,263,195 and 6,994,255 respectively. The public debt in 1902 amounted to 3,364,000 drachmai. By a convention of August 6, 1901, signed by the Cretan government at the instance of the protecting Powers, Crete agreed to pay 1,500,000 drachmai and concede for twenty years the working of the salt monopoly to the Ottoman Debt Commission, which therefor renounced all rights and privileges in the island.

Ever since the establishment of Cretan autonomy in 1898 there have been recurrent rumors that the Powers would agree to the annexation of the island to Greece. It was reported in February, 1902, that the annexation movement was making considerable progress and that the Cretan party favoring independence had "practically collapsed under popular and official disapprobation;" and another rumor of annexation was current in the fall of the year. It seems unlikely, however, that this will soon be effected. In the first place the independence party has not "collapsed." It still urges that the existing régime produces heavier burdens than Crete can well bear, and maintains that if the island were free the people would work more energetically in the interest of administrative organization and industrial development. There seems to be some basis for these arguments, but it must be remembered that the Powers cannot consent to the independence of Crete without affronting Turkey perhaps to the point of precipitating war. But for this same reason the Powers cannot intervene in the interests of the annexationists. The latter in support of their programme hold that Crete can make no favorable progress on her own resources, and that her only hope is closer relations with Greece, a country for the most part akin to her in blood, language, and religion. But aside from the initial difficulty with the Sultan it is pointed out that Greece herself is in no condition to grant material aid to Crete. Since the settlement of the Græco-Turkish war of 1897 Grecian finance has been superintended, or at least guarded, by representatives of the Powers, and it is not likely that Greece could be of any real assistance to Crete in matters financial, industrial, or political. The protecting Powers do not care to disturb the *status quo*, while the governments at Berlin and Vienna, desiring to humor the Porte as far as possible in order the better to advance their own interests and to interfere with those of Russia in the Near East, would hardly pass without protest such a blow to the Turk. It is generally conceded that Crete must be content with the position given her after the war of 1897, and that complete independence cannot come until her own resources and power are much greater than at present, or the strength of the Ottoman empire has failed. See ARCHÆOLOGY.

CRICKET maintained, in 1902, its gradual increase of popularity in the United States, being followed with greater enthusiasm and played by more associations than ever before. There were two important international matches, one the annual meeting between the United States and Canadian teams, and the other between Lord Hawke's English team and an eighteen selected from the California Cricket Association. The former match was played at Philadelphia September 12-13, and was won by the American team by an inning and 104 runs. In the other, which was played at San Francisco on November 26, the visitors won by 3 wickets and 30 runs. The inter-city matches, between New York and Philadelphia, were won by the latter in two meetings, at Philadelphia on August 2, by 3 wickets and 22 runs and at Bayonne, N. J., on August 30, by 42 runs. In the Veterans' Match (players over forty years), the All-Philadelphia team beat All-New York at Brooklyn on June 19, by 80

runs. In the Metropolitan District League the championship was won by the Knickerbocker Athletic Club, with 9 victories of 12 games played.

CRIME. The list of crimes in the United States compiled by the Chicago *Tribune* puts the number of murders and homicides for 1902 at 8852, an increase of nearly 1000 over 1901. Of these, 6307 were due to quarrels and 540 to jealousy. A remarkable feature was the great increase in the number of murders committed by robbers, 338 compared with 193 for 1901. During the year 144 persons were executed, 26 more than in 1901. The greatest increase in the number of executions was in the Southern States—seventeen as against seven in the States of the North. Hangings numbered 101 in the South and 43 in the North. Eighty-five negroes, two Indians, and one Chinaman were executed. Mississippi leads in the number of executions with twenty-two, and Arkansas and Pennsylvania follow with ten each. There was a marked decrease in the number of lynchings during the year, which may be taken as significant of a more popular regard for regular legal processes. The total of 96 in 1902, 39 less than in the year previous, is the smallest number recorded since 1855. The lynchings were distributed as follows: Alabama, 5; Arkansas, 5; Colorado, 1; Florida, 4; Georgia, 8; Illinois, 2; Indiana, 1; Kansas, 1; Kentucky, 9; Louisiana, 11; Michigan, 1; Mississippi, 11; Missouri, 5; North Carolina, 4; Oregon, 1; South Carolina, 3; South Dakota, 1; Tennessee, 5; Texas, 7; Virginia, 4; West Virginia, 6; Wyoming, 1. Eighty-seven occurred in the South and nine in the North. Of the victims, 86 were negroes, 9 whites, and 1 Indian. One woman was lynched in South Carolina. The alleged crimes were: Murder, 37; criminal assault, 19; attempted criminal assault, 11; attempted murder, 4; other offences, 19; unknown, 6.

There were 8231 suicides in the United States in 1902, an increase of 986 over 1901. The rate is increasing steadily. Frederick L. Hoffman in the *Medical Record* gave the rate for the decade 1891-1900 as 15.7 per 100,000 in the principal cities. In 1901 the rate was 16.6. St. Louis had the highest rate (25.7) and Fall River the lowest (2.9). A remarkable fact is the great increase in the proportion of women to men. Three times as many women committed suicide in 1902 compared with 1901. Dr. Arthur MacDonald shows that there is much reason for holding that crime of all kinds is increasing in the United States, and that it is increasing most rapidly in the North, where educational advantages are greatest.

The report of the prison commissioners of Great Britain states the number of prisoners per 100,000 of population in England as 621, in Ireland 744, and in Scotland 1487. The report shows some increase of crime in England and Wales. For the year ending March 31, 1902, there were 193 more convicts sentenced to penal servitude and 17,163 more imprisonments than in the previous year; while the daily average population of local prisons was the highest since 1885. There has been a great decrease since 1878, however, when the local prison population was 83.2 per 100,000, against 50 for 1902; and the convict prison population was 45.3 against 8.2 for 1902. The Boer war with the consequent increase in the number of men under arms accounts for some of the increase. Better policing has much to do with it. The enactment of new laws may have had some effect, and it is also suggested that "an increase of population pressing against the means of subsistence" is another cause. The commissioners propose that the professional criminal shall be isolated from other criminals and detained indefinitely, until those in charge may deem it safe to set him at liberty. The method followed at Borstal prison is recommended. The youthful criminals from sixteen to twenty are separated from the hardened criminals, subjected to stern discipline and hard work; and on discharge are carefully supervised until they have shown themselves worthy of liberty.

CROATIA and SLAVONIA, a division of the Kingdom of Hungary, situated northwest of Bosnia, have an area of 16,773 square miles, and a population (1900) of 2,416,304. Agram (Zágráb) is the capital, with 57,690 inhabitants. The country is under the direct control of the Hungarian crown, represented by a viceroy (banus) responsible to both the Hungarian ministry and Croatian diet. There is autonomy in home affairs, an elected diet, and local representative assemblies. The diet sends forty members to the Hungarian parliament, and there is always one Croatian member in every Hungarian ministry. Revenue and expenditure balanced in 1900 at 18,576,165 kronen. The expenditure of the Hungarian government for the administration in Croatia and Slavonia, according to the budget of 1902, amounted to 16,540,741 kronen. The krone is worth 20.3 cents. Agriculture is the principal industry, wheat, rye, barley, oats, maize, and potatoes being the chief products. Coal, iron, and salt mines are worked.

From August 31, 1902, to September 3, serious riots took place at Agram, between the Crotian and Servian elements of the population. Many houses were wrecked, over 100 persons injured, and quiet was restored only after martial law had been declared and the mobs overawed and dispersed by the military. The cause of the trouble appeared to lie in the jealousy, partly religious and partly political, existing

between the Catholic Croats and the Orthodox Serbs. Severe earth
occurred in Croatia on January 15 and 16, and May 13, 1902.

CROKE, Most Rev. Thomas William, a Roman Catholic archbish
Ireland, died July 22, 1902, at Thurles, Ireland. He was born May
Mallow, County Cork. After studying for the priesthood at the Iri
Paris, he attended the College of Merrin in Belgium, where for a wh
English, rhetoric, and philosophy. In 1845 he went to Rome and finish
scholastic career with further theological studies. Soon after his retu
he was appointed a professor at Carlow, the oldest ecclesiastical colleg
try. In less than a year he was called to the chair of theology at the Ir
Paris, but returned in 1848 to his native diocese of Cloyne, with
connected for over twenty years as missionary priest, parish priest of
chancellor of the diocese, except for seven years during which he wa
St. Colman's College in Fermoy. In 1870 he became bishop of Auckla
land, and in 1875 was appointed bishop of Cashel and Emly. He w
the most able Irish ecclesiastic since the death of Cardinal Cullen.
poral as well as ecclesiastical affairs, he exercised a wide influence in I
an anti-Parnellite and a member of the Land League.

CROQUET is played in the United States under the name of Roq

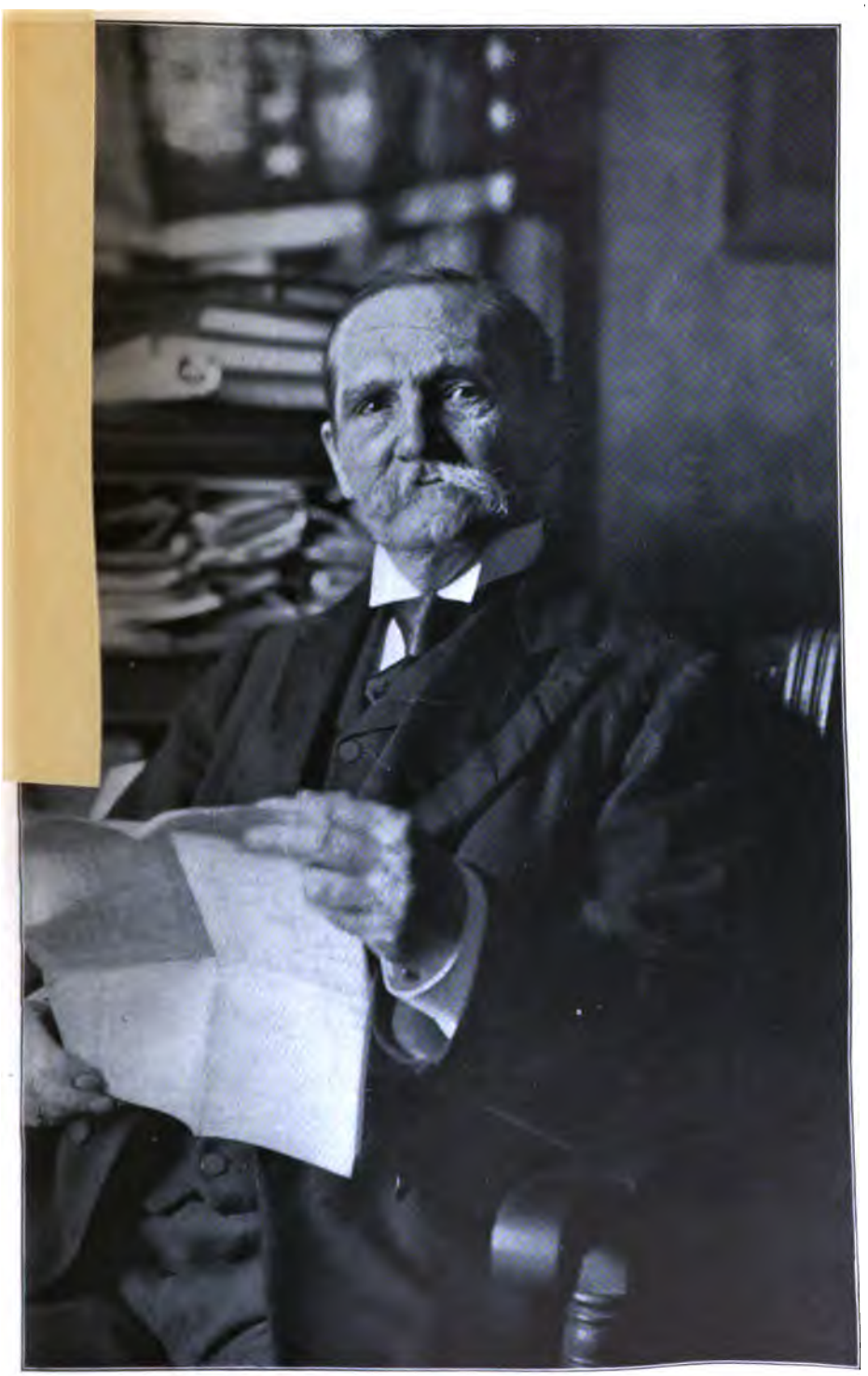
CROSLAND, T. C., author of *The Unspeakable Scot.* See Litera
can and English.

CUBA, an American republic occupying the largest island in the
was formally established as an independent government May 20, 1902
is Havana.

Area and Population.—No accurate survey of the island has ever be
area is given by the United States Coast and Geodetic Survey at 46,575
while the information division of the War Department estimates it
square miles. The population of Cuba, according to the census taken
States military authorities in 1899 was 1,572,797. Of this population
made up 57.8 per cent.; foreign whites, 9 per cent.; negroes and mix
per cent., while the Chinese were less than 1 per cent. According to the
the six provinces into which Cuba is divided for administrative purpos
and populations as follows: Havana, 2772 square miles, population, 42
zas, 3700 square miles, population, 202,444; Pinar del Rio, 5000 square
lation, 173,064; Puerto Principe, 10,500 square miles, population, 8
Clara, 9560 square miles, population, 356,536; Santiago, 12,468 square
tion, 327,715. The school census for 1902 shows a population between six and eighteen years of 400,000, 70 per cent. being white.

Establishment of the Cuban Government.—On May 20, 1902, the Cuban government was formally inaugurated in accordance with the terms of the Platt amendment. This amendment, inserted in the army appropriation bill of March 2, 1901, directed the President to withdraw the federal authority from the island so soon as a Cuban government was established under a constitution, which, in stipulated terms, safeguarded the interests of the United States and insured so far as possible the stability and permanence of the new insular authority and sovereignty. The constitution proper was adopted by the constitutional convention on February 21, 1901; the exact terms of the Platt amendment were accepted and added to the constitution on June 12, 1901; an electoral law was promulgated by the military authority on October 14, 1901, and under this law elections were held on December 31, 1901 for presidential and senatorial electors, and for members of the house of representatives, governors of the provinces, and members of the provincial councils. The electors cast their votes on February 24, 1902, the Congress was convened on May 5, 1902, by military orders of April 14, 1902, to examine into the credentials of their several members and to count and ratify the electoral vote, and on May 20, 1902, the constitution was officially promulgated and the insular government transferred from the military authority of the United States to the officials and people of the Republic of Cuba.

The peculiar relation in which the United States stood to Cuba in view of the Platt amendment and the Treaty of Paris, and the desire of the United States to start the government in full organization and activity, made certain conditions and agreements necessary to the transfer, of which the more important were as follows: (1) It was expressly understood that the obligations assumed by the United States with respect to Cuba under the Treaty of Paris, and which among other things safeguarded the personal, civil, and property rights of resident Spaniards, should with the transfer of government be assumed and undertaken by the Cubans. (2) In order to prevent any break in the continuity of legal order, jurisdiction and administration, it was agreed that while the responsibility of the United States for the collection of revenue, the administration of law and the conduct of the insular employees should



TOMAS ESTRADA PALMA

Photo by H. H. Moore, N. Y.

cease, yet all the decrees and orders of the military government should remain in force and all the subordinate officials of the military government should remain in office until change was made by the proper authorities. (3) That the coast defenses might be cared for, and that the island might not be left entirely defenseless, a small body of artillery, less than 900 all told, would be left in the fortifications at Santiago, Cienfuegos, and Havana. These forces were to remain until the Cubans substituted their own, and until the naval stations to be acquired by the United States in Cuba had been agreed upon. Legally, the troops would occupy a position of extra-territoriality, as that of war vessels visiting the waters of another nation; freedom of transit was granted them, and they on their part were especially directed to render appropriate military honors to the Cuban flag and to avoid "even the appearance of interference in governmental or political affairs." (4) The measures which had been devised by the military government for the sanitation of cities and the prevention of epidemics were to be continued. These included: Contracts for the sewerage and paving of Havana and for the sewerage of Santiago; plans for supplying Santiago with water; the sanitary regulations in force in Havana; and the rules established January 17, 1899, and extended April 29, 1902, for the maintenance of quarantine against epidemics at Havana, Matanzas, Cienfuegos, Santiago, and other places as occasion might require. (5) That the Isle of Pines would remain *de facto* under the jurisdiction of the Republic of Cuba, subject to such treaty as might be entered into between the United States and Cuba in conformity with the terms of the Platt amendment.

In commenting upon these arrangements for the continuance of the existing legal and administrative system without abrupt change, the secretary of war pointed out in his annual report for 1902, that the whole situation had been quite unprecedented "with its curious device of a suspended sovereignty given up by Spain, but not in terms vested in anybody else, and if vested, remaining dormant, while a practical working government of military occupation in time of peace, deriving its authority from the sovereignty of another country, claimed temporary allegiance, made and enforced laws, and developed a political organization of the Cuban people to take and exercise the suspended or dormant sovereignty." If the old government had waited for the new government to pass laws and appoint officers, a period of anarchy would have ensued for "the instant that the new government was created the intervening government ceased." As it was, and through "the most perfect understanding, mutual confidence, and sympathetic cooperation between the outgoing and incoming officials the government which, until noon of May 20, was proceeding under the authority of the President of the United States, went on in the afternoon of that day and has ever since continued under the sovereignty which had been abandoned by Spain in April, 1899, without any more break or confusion than accompanies the inauguration of a new President in the United States."

Finances.—The following table, prepared by the secretary of war, shows the Cuban revenues and expenditures during the period of American occupation, from July 18, 1898, to May 19, 1902:

REVENUES.

	Customs.	Postal.	Internal.	Miscellaneous.	Total.
July 18, 1898, to June 30, 1899	$7,228,460.60	$151,585.40	$347,431.89	$234,345.66	$7,961,823.55
Fiscal year 1900	16,068,035.90	258,148.03	884,783.29	175,308.15	17,386,275.37
Fiscal year 1901	15,950,526.91	367,950.60	658,585.92	184,003.23	17,161,066.66
July 1, 1901, to May 19, 1902	13,402,917.15	335,956.61	688,581.67	260,519.79	14,687,975.22
Total	$52,649,940.56	$1,113,640.64	$2,579,382.77	$854,176.83	$57,197,140.80

EXPENDITURES.

	Customs.	Postal.	Miscellaneous.	Total.
July 18, 1898, to June 30, 1899	$372,732.57	$223,492.75	$5,192,118.57	$5,788,343.89
Fiscal year 1900	841,376.59	494,539.09	14,325,469.79	15,661,385.47
Fiscal year 1901	910,993.66	524,198.85	16,210,376.00	17,645,568.51
July 1, 1901, to May 19, 1902	787,223.24	383,531.34	15,138,978.83	16,309,733.41
Total	$2,912,326.06	$1,625,762.03	$50,866,943.19	$55,405,031.28
Total excess of revenues over expenditures	.....	.....	.....	$1,792,109.52

When General Wood turned over the government of Cuba to the duly elected civil

authorities, there was in the treasury, according to his statement, a balance of $681,-191.02, which was reduced to $539,984.99 by later computations.

On December 31, 1902, five months after the inauguration of the government of the republic, the balance on hand in the treasury amounted to $1,561,942.06. The receipts of the Cuban treasury up to the close of 1902 were as follows: From May 20 to 31, $416,953.39; June, $1,373,641.84; July, $1,552,638.13; August, $1,239,048.34; September, $1,596,401.89; October, $1,610,196.48—total, $7,788,880.07. The average monthly expenses during this time were $1,295,428.48, or about $147,063.62 less than for the same period of the preceding year. The budget for the fiscal year 1903-04, which was submitted to the Congress November 1, 1902, by President Palma, estimated the total revenues at $17,514,000 and the expenditures at $14,899,967.72. The budget in detail was as follows:

Receipts.	
From customs duties	$14,781,000
From tax on spirits	1,200,000
From the consular service	250,000
From internal revenue	500,000
From communications	420,000
From state property	119,800
From other sources	243,200
Total	$17,514,000

Expenditures.	
For the legislature	$413,319.68
For the executive	85,700.00
For the departments of State and Justice	310,396.00
For the department of Government	4,529,998.00
For the department of Finance	1,801,117.88
For the department of Public Instruction	3,721,790.84
For the department of Public Works	2,923,011.82
For the departments of Agriculture, Industry and Commerce	165,319.50
For the department of Justice	949,314.00
Total	$14,899,967.72

The aggregate revenue of the Cuban municipalities during the fiscal year ending June 30, 1902, was $4,270,000, of which $1,349,000 was derived from the tax on incomes from land and improvements, and $1,262,000 from the tax on industries and occupations. The remaining $389,000 was raised from sixteen other sources, the most important two of which were a carriage and transportation tax and a license fee required of peddlers and venders in the public highways. Urban property paid $1,034,000, and rural property $315,000 of the land tax. Of the 128 municipalities in the island at the close of the fiscal year 1902, only 36 had standing debts of any kind. Exclusive of the city of Havana, which had $10,000,000 (Spanish gold) in 6 per cent. bonds outstanding, there was no bonded indebtedness and the total interest charge was less than $5000. The total floating debt of all the municipalities was $170,000, against which the local treasuries held $152,000 in cash and $542,000 in credits for back taxes and other unpaid revenues.

Education.—Of the entire population of school age (400,000) in Cuba, 47 per cent. were enrolled during 1902 and 24 per cent. were in regular attendance at the public schools. The small percentage of attendance is accounted for by the sparseness of population in rural districts. Nearly half the inhabitants of the island are collected in towns, the rest being so scattered over the country as to give a density of only 18 per square mile. Bad roads, the terrible heat, and the poverty of the people cut down the attendance. The organization of "school cities" was one remarkable feature introduced during the year. The plan is to have the scholars organize themselves into bodies similar to the municipal governing bodies, the purpose being to teach the youth the first principles of responsibility and self-government. The plan has worked with remarkable success and great things are predicted for it in the future.

Commerce.—An interesting table given by the secretary of war in his annual report for 1902 shows by classes of goods the total imports and exports of Cuba for the period of the American occupation from July 18, 1898, to May 20, 1902. From this it appears that the value of all imports was $225,437,135, of which $97,790,310, or 43 per cent., came from the United States, while the exports were $180,609,067, of which $135,416,140, or 75 per cent., went to the United States. The largest valued imports, in fact, the only classes valued at as much as $7,000,000, were foodstuffs, $75,233,450; animals and animal products, $40,364,743; cotton, silk, vegetable fibres, wool, etc., $33,736,778; metals and metal manufactures, $20,765,690; and liquors and beverages, $10,433,997. Of these classes the United States furnished respectively, 54, 28, 10, 71, and 18 per cent. The value of the considerable exports were: Tobacco and manufactures of tobacco, $82,997,115; sugar and molasses, $77,699,641; woods (unmanufactured), $3,018,967; iron and manganese ore, $2,658,323; fruits and nuts, $2,551,220; and all other articles, $11,683,801. The United States took respectively of these classes, 55, 100, 58, 97, 100, and 47 per cent. The figures show that in the four years the balance of trade against Cuba was $44,828,068, and that the balance of trade against the United States as regards Cuba, was $37,625,830. That is, while Cuba was buying in general more than she was selling, she was selling 75 per cent. of her products to the United States and buying from the United States only 45

per cent. of her imports. As frequently pointed out, however, there was no reason why, with a proper reciprocity treaty with Cuba, many articles such as cottons, woolens, wines, chemicals, drugs, vegetables, and vegetable fibres, live stock, and leather goods, should not come almost exclusively from the United States.

The American minister at Havana, Mr. H. G. Squiers, in his official report on the foreign commerce of Cuba notes a decrease of 143,000 tons in the sugar trade for the first six months of 1902, as compared with the same period of 1901, but 318,000 tons were held in storage to await better prices. Nearly all the wheat, flour, corn, crude oil, coal, and meats, except jerked beef, were imported from the United States. Spain and Canada supplied large quantities of potatoes, onions, hams, and butter. Imports from the United States for the first six months of 1902 show a decrease of 12 per cent. from the corresponding period in 1901, while imports from Spain increased 2 per cent.

Agriculture and Industries.—Gen. Fitzhugh Lee in an interview published on July 13, 1902, said that unless financial and industrial conditions should improve soon, anarchy or annexation to the United States would result. Throughout most of the year, the Cuban planters were agitating for annexation. On July 30, their organization, the Circulo Haciendados, held a meeting and voted to carry on a propaganda for annexation. Later in the year industries revived somewhat, and more stability was manifested. The sugar crop of Cuba for 1902 was estimated at 880,000 tons. The total of American investment in Cuban sugar production is probably not far from $40,000,000. The sugar industry is a business for large investors, but renters or owners of comparatively small properties in the vicinity of large "centrals" or grinding mills, find the production of cane a reasonably profitable occupation under normal market conditions. Many of the mills depend largely upon this source of supply. This is indicated by the fact that during the last season (1902) the number of mills in operation was about 160, while the number of cane growers was estimated at from 18,000 to 20,000.

A good deal of interest was manifested in the experiments toward the culture of tobacco under cheese-cloth as a protection to the plants from the sun and from injury by insects. The duty on cheese-cloth, ranging from 15 to 50 cents per kilogram (2.2046 pounds) was repealed July 30, 1902, in order to encourage this new industry. It is believed that Cuba may rival Sumatra in the production of fine wrappers, for which there is large demand in the United States.

Stockraising and Fruit Growing.—Of the 900,000 caballerias (30,000,000 acres) of land in Cuba, 500,000 caballerias (16,600,000 acres) were uncultivated in 1902, and produced nothing. On these lands at least 4,000,000 head of cattle could be pastured, allowing 8 head per caballeria (33 1-3 acres), which would be a moderate estimate, as the land is well adapted to stock-raising. About 400,000 head of cattle were imported and distributed throughout the island during 1902—the average consumption of the island being 300,000. In several sections, notably in the vicinity of Havana, large tracts were bought in 1902 for the cultivation of oranges, pineapples, and vegetables. The larger plantations have produced fair returns in the past and the industry offers many inducements to those of small means who are willing to back their capital with due intelligence and hard work. On the northeastern coast the United Fruit Company acquired extensive plantations during 1902 for the growing of bananas and other fruits. It is believed that eastern Cuba can grow all the bananas and cocoanuts consumed in our eastern markets.

Mining.—Although many metals and minerals are found in Cuba few mines of any importance have been developed thus far. The iron and manganese mines to the eastward and northward of Santiago are again in operation. The Spanish-American Iron Company at Daiquiri represents an investment of $3,000,000 of American money. The ore from its mines is used for admixture with American ores. The Juragua iron mines represent another $1,500,000, but there are signs of exhaustion and consequently shipments of ore were greatly reduced. The Panupo Manganese Mine represents a capital of $500,000, and the Cuban Manganese Company and the Standard Company represent $250,000 each. Some 200 other mining claims are located in the same region but they are as yet undeveloped.

Railways.—The existing railways in Cuba are largely owned by British capitalists. During the calendar year of 1902 the total profits of all the operating companies amounted to $2,120,000. The Havana Electric Railway Company began the reconstruction of the street railway system of Havana. The cost of the improvements was estimated at $3,000,000, and when these have been completed Havana will have a thoroughly modern street car system with 36 miles of single track. The most important enterprise carried out in 1902 was the completion of the central line of railroad from Santa Clara to Santiago, a distance of 350 miles. The aggregate length of this "backbone railway," as it is aptly termed, with its feeders to the north and south coasts, will be approximately 1000 miles. The branches reach to such ports as Nipe, Baracoa, Gibara, and Manzanillo. For over half a century a sys-

tem of this kind has been talked of by foreign capitalists, but it was not until Sir William Van Horne, the builder of the Canadian Pacific Railroad, formed the Cuban Company, that this great agency for developing the interior resources of the island was provided. The difficulties in construction arose from the inability to secure a governmental franchise. The outright purchase of a private right of way consequently became necessary. For a time a working force of 6000 men was employed, and at certain portions of the route the line was carried forward at considerably more than a mile a day. The tracks are of standard gauge, the bridges of steel and masonry, and the equipment is thoroughly modern.

The telegraph system is a government institution, inherited from Spain, and has been much improved and extended by the Signal Corps of the United States Army.

Land Conditions.—Land titles in the unoccupied and newly settled parts of Cuba are in many cases defective. The government has recently taken steps towards the perfection of titles. There are no obtainable government lands, as practically all land is held by individuals and in the eastern portion of the island it is usually held in large tracts, especially in the vicinity of the new railroad. No systematic land survey has yet been made and the large areas are mostly in irregular forms—their boundaries being mostly defined by watercourses or other natural objects, and roads. In some cases boundaries are doubtful, or entirely undefined.

The Postal Frauds.—On March 24, 1902, the audiencia, or district court of Havana, found E. J. Rathbone, C. F. W. Neely, and Dr. W. H. Reeves, guilty of embezzling post-office funds, and sentenced them to ten years' imprisonment each. In addition Neely was fined $56,701; Reeves, $35,516; and Rathbone, $35,324.

In 1899 Rathbone was director-general of posts in Cuba, Neely chief of the financial bureau, and Reeves chief of the bureau of postal accounts, and later an assistant auditor of the island when his bureau was made a division of the auditor's department. In 1900 charges of embezzlement were preferred against Neely, and Reeves, bcoming frightened, turned State's evidence, confessed his own share in the frauds, and implicated Rathbone as well as Neely. It was believed for a long time that Rathbone's worst fault was incompetency, and that he was merely the victim of Neely. Rathbone was neither arrested nor removed. Then Fourth Assistant Postmaster-General Bristow was sent to Cuba to investigate. His report submitted to Secretary of War Root, July 25, 1900, implicated Rathbone in Neely's embezzlements, and charged him with converting to his own use money from the Cuban postal revenues, and of gross neglect of his duties, and recommended his removal. Neely, Reeves, and Rathbone were arrested in the United States as was also E. P. Thompson, postmaster of Havana. Neely resisted extradition, but was beaten after an appeal to the United States Supreme Court. Mr. Bristow in his report fixed the minimum of Neely's embezzlement at $131,713.89, of which $101,113.16 was secured by the sale of United States stamps, surcharged for use in Cuba, which were ordered destroyed after the issue of a special series of Cuban stamps. Rathbone was accused by Reeves of complicity with Neely, and in addition it was shown that he made the most extravagant misappropriation of public funds for his personal use, that he drew $5 a day for expenses after his salary had been raised to $6500 a year with the understanding that there should be no daily allowances, and that he kept up a princely establishment at the expense of the Cuban taxpayers. The cases were appealed to the Supreme Court of Cuba where the finding of the lower court was sustained. The convicts began serving out their sentences, but after the establishment of the civil government in Cuba the Cuban Congress passed a bill which was signed by President Palma June 9, granting amnesty to all Americans in prison or awaiting trial. Accordingly the three embezzlers were set free.

Executive Officers of the Cuban Government.—The principal executive officers of the Republic of Cuba in 1902 were: President, Tomas Estrada Palma; vice-president, Luis Estevez Romero. Cabinet: Secretary of state and justice, Carlos de Zaldo; secretary of the interior, Luis Yero Buduen; secretary of public instruction, Leopold Cancio; secretary of public works and acting secretary of agriculture, Luciano Diaz; secretary of the treasury, José M. Garcia Montes.

Governors of the Provinces.—Havana, Gen. Emilio Nuñez; Pinar del Rio, Col. Luis Perez; Santiago de Cuba, Gen. Francisco Echavarria; Santa Clara, Gen. José Miguel Gomez; Puerto Principe, Gen. Lope Recio; Matanzas, Col. Domingo Lecuona.

In September Señor Terry, the secretary of agriculture appointed by President Palma, resigned because his plans for the relief of Cuban agriculture were blocked in the Congress by the radical element. He was generally regarded as one of the most energetic and capable members of the cabinet, and his resignation was a great loss to the administration. It was affirmed by some Cuban papers that the political neutrality of President Palma made his position more difficult, as he had not the hearty support of either party. The lack of harmony in the cabinet, however, did not prove serious.

CUMBERLAND PRESBYTERIAN CHURCH was organized in 1810, in the Cumberland Valley of Kentucky and Tennessee. It is strongest in the central, south central, and southwestern States, considerably more than one-half of its adherents being found in the synods of Tennessee, Texas, and Missouri. There are now 16 synods and 118 presbyteries, with 2944 churches with property valued at $5,025,873, and 184,493 members and 1595 ordained ministers. In the Sabbath-schools are enrolled 111,772 teachers and scholars. In the church year 1902 contributions for all purposes aggregated $923,660, a gain of more than $100,000 over the amount of the previous year. The seventy-second annual meeting of the general assembly of the church was held May 15-22, 1902, in Springfield, Mo., Rev. S. M. Templeton was chosen moderator. Reports on the foreign misson fields in China, Japan, and Mexico were made, and on the work at home, that among the Indians being noted as very encouraging. The creation of a board of home missions was discussed, but it was decided to refer the whole matter to a subsequent meeting, in St. Louis, of the Board of Missions and Church Erection, together with the synodical corresponding members, the action of this conference to be announced at the next general assembly. The Cumberland Presbyterian Church controls fourteen educational institutions, with a theological seminary at Lebanon, Tenn. The original charter of Lincoln University has been amended to embrace departments at Lincoln and Decatur, Ill., known as Lincoln College and Decatur College and Industrial School. The name of Lincoln University was changed to the James Millikin University in honor of the benefactor whose gifts to the subordinate institutions amounted to $275,000, including $200,000 for the new Decatur College and Industrial School. The two colleges have received for endowment and building purposes a total of $500,000. The session of the General Assembly in 1903 will be held in Nashville, Tenn. The Cumberland Presbyterian Church was one of the denominations named in the appeal for federation issued by members of the United Brethren in Christ (*q.v.*). Two Illinois presbyteries of the former, however, have framed memorials to the General Assembly, asking that body to submit overtures for union to the Presbyterian Church (North). The Cumberland Presbyterians have an official organ, the *Cumberland Presbyterian*, and maintain a publishing house in Nashville, Tenn.

Cumberland Presbyterian Church, Colored, established in 1869, has about 450 ministers, 400 churches, and a membership approximating 39,000. The annual General Assembly of the church convened in May, 1902, at Newbern, Tenn.

CUMMINGS, Amos J., an American journalist and politician, died at Baltimore, Md., May 2, 1902. Born at Conkling, Broome County, N. Y., May 15, 1841, he learned the printer's trade in his father's office, and when fifteen years old ran away from home to become a journeyman printer. He took part in William Walker's last "invasion" of Nicaragua in 1857, and during the first years of the Civil War served in the Twenty-sixth New Jersey Infantry, leaving in 1863, through illness, with the rank of sergeant-major. He became an editor of the New York *Weekly Tribune* in 1865, was managing editor of the New York *Sun* from 1869 to 1873, filled the same office for the New York *Express* in 1876, and in 1884 began to edit the *Sun's* weekly edition. The evening edition of the same paper he established in 1887. In 1886 he was elected to Congress as Democratic representative of the sixth New York district, succeeded Samuel S. Cox as representative of the ninth district in 1889, and through successive re-elections held a seat in the national legislature until his death. While in Congress he served on many important committees, was instrumental in obtaining the institution of Labor Day as a legal holiday, and was especially prominent in his advocacy of naval expansion. In 1892 and in 1896 he was a delegate to the Democratic National Convention. A traveling tour through Florida and California found description in a series of letters to the New York *Sun* over the signature of "Ziska."

CUMMINS, Albert B., who was elected governor of Iowa in November, 1902, is a native of Pennsylvania, having been born at Carmichaels in that State February 15, 1850. He received an academic education at Waynesburg, Pa., studied law, was admitted to the bar, and removed to Iowa, where he practised his profession at Des Moines. He became prominently identified with Republican politics, became widely known as a political organizer and campaign speaker, and served in various capacities in the State organization, and as a member of the Republican National Committee for Iowa. He was one of the leaders of the movement within the Republican party in the Middle West in favor of a reduction of the tariff, and was instrumental in securing planks declaring for such reduction in the Iowa Republican platforms of 1900 and 1902.

CURAÇAO, a Dutch colony consisting of several small islands lying off the Venezuelan coast, has an area of 403 square miles, of which the island of Curaçao comprises 210. The total population on January 1, 1900, was 51,693. The colony is administered by a governor appointed by the crown and resident at Willemstad, the

chief town and port. For 1901 the estimated revenue was 602,000 guilders, and the expenditure 700,000 guilders, the deficit being supplied by the Netherlands. (The guilder is worth 40.2 cents.) The chief products are corn, beans, pulse, cattle, salt, lime, and woods. The imports of the island of Curaçao in 1899 amounted to 1,922,917 guilders.

CURLING, while it engaged only a relatively small following in the United States, was most enthusiastically played in 1902. What is practically the American championship—the Gordon Medal—was won by the Utica team, February 9, which scored 188 points against 81 by the Thistle rink of New York City. Utica also won the Dawson Cup at Van Cortlandt Park, New York, on February 14, defeating the Empire City rink, 21—10. The Dalrymple Medal, contested annually by teams representing the North and South of Scotland, was won in 1902 by the South, at Van Cortlandt Park, January 12, with a score of 57—50.

CURRENCY REFORM. See BANKS—BANKING (paragraph Currency Reform).

CYCLING. The season of 1902 in the United States was notable for the numerous changes made in the records for various distances, by both amateurs and professionals. The national amateur championships, held under the auspices of the National Cycling Association, which controls all racing in this country, were won as follows: Quarter-mile, Billington, 30 1-5 seconds, Hartford, Conn., August 20; third-mile, Hurley, 40 2-5 seconds, Springfield, Mass., August 21; half-mile, Hurley, 1 minute 10 3-5 seconds, New Haven, Conn., August 22; mile, Hurley, 2 minutes 17 1-5 seconds, Springfield, August 21; two miles, Root, 5 minutes 18 3-5 seconds, New Haven, August 22; five miles, Root, 10 minutes, 46 seconds, Hartford, August 20. Hurley and Root tied for first place at 18 points, the ride-off being won, September 8, by Hurley. The amateur middle-distance championship went to Sulkins, at New Haven, August 22, distance 15 miles, time 25 minutes, 44 1-5 seconds. In the professional ranks the Grand Circuit championship was won by Kramer, who throughout the circuit made 128 points, with 18 firsts, 4 seconds, and 1 third. Taylor was second with 57 points—5 firsts, 6 seconds, 1 third and 1 fourth. The different events were won as follows: Quarter-mile, Kramer; third-mile, dead heat, Kramer and Taylor; half-mile, Fenn; mile, Kramer; two miles, Taylor; five miles, Kramer. The professional paced records (competition) from 1 to 20 miles were broken by Nelson, 1 mile, 1 minute 20 seconds, to 20 miles, 27 minutes 18 seconds. From 21 to 25 miles Champion set new figures, and from 26 to 41, Elkes. Nelson also made a mile against time in 1 minute 18 3-5 seconds. In the hour, Elkes made a new record, 41 miles 250 yards, with pace. Smith, an amateur, made new records from 1 to 5 miles, paced, against time, and Sulkins did the same in competition. In the unpaced class, Hurley in competition established new marks for one-quarter mile, 28 2-5 seconds; one-half mile, 57 1-5 seconds; two-third mile, 1 minute 18 seconds; and five miles, 10 minutes 56 seconds; and Linley at ten miles, 21 minutes 23 seconds. The professional six-day race held at Madison Square Garden, New York City, December 8-13, proved to be a remarkably close contest although the best performance did not endanger the record. The leading teams finished as follows: Leander and Floyd Krebs, and Newkirk and Jacobson, each 2477 miles, 3 laps; MacFarland and Maya, Bedell and Bedell, Moran and Stinson, each 2477 miles 2 laps. This was the fourth annual race held under the law requiring men to ride in teams and prohibiting riders from being on the track more than twelve hours a day. The record is 2733 miles 4 laps, made by Miller and Waller in 1899. The championship of the Intercollegiate Bicycle Association was won by Yale at the Vailsburg (N. J.) track, May 31, with 52 points. Pennsylvania was second with 2 points, and Gallaudet third, with 1 point.

CYPRUS, an island in the Eastern Mediterranean nominally a part of the Ottoman Empire but actually a colony of Great Britain. It has an area of 3584 square miles, and a population (1901) of 237,022. The majority of the inhabitants are adherents of the Orthodox Greek Church, but there are over 50,000 Mohammedans in the island. The capital is Nicosia, an inland town, with a population (1901) of 14,752. The government, in accordance with a convention of 1878, is administered by British officials under a high commissioner, who is assisted by an executive and a legislative council, the latter being partially elective. There is an annual tribute of £92,800 payable to the Sultan. The revenue amounted in 1901 to £215,268, and in 1902 to £198,070, and the expenditure to £135,388 and £135,824, most of which was expended on police and public works. The colony receives an annual grant from the British government, which amounted in 1901 to £32,000. The value of the imports increased from £289,874 in 1900 to £364,137 in 1901, and the exports fell off from £338,371 to £311,130 in the same period. The principal products are agricultural, and include grain of various sorts, linseed, wine, olives, cotton, wool, anise-seed, and sponges. Wine was exported in 1901 to the amount of 1,550,620

gallons. There is a system of elementary schools, receiving government aid, and a number of higher schools under denominational control.

CZECHS. See AUSTRIA-HUNGARY (paragraphs on History).

DAHOMEY, a colony of France in Africa on the Gulf of Guinea, lying between Togoland on the west and Lagos on the east, forms one of the administrative divisions of French West Africa (*q.v.*). With only 70 miles of coast line it opens up northward into a broad hinterland, making the total area approximately 60,000 square miles. The population is estimated at 1,000,000. The country is within the jurisdiction of the governor-general of French West Africa, but retains its administrative and financial autonomy, its affairs being locally administered by a governor and council at Porto Novo (population, 50,000). Dahomey furnishes proof that it is possible for a French colony to be self-sustaining. Able administration of its finances has increased the receipts from 325,000 francs in 1890 to 2,648,000 francs in 1901 and 3,580,000 in 1902. (The franc is worth 19.3 cents.) The receipts and expenditures are made to balance, without a subvention from the French government, in spite of an extraordinary expenditure of over 800,000 francs incurred on the surveys and road-bed of the projected railway. The imports amounted in 1900 to 15,221,419 francs, and in 1901 to 15,752,650 francs, while the exports, chiefly palm kernels, palm oil, fish, and kola nuts, decreased from 12,755,894 francs to 10,478,916 francs in the same period. The decrease was probably due to the movement of products of the interior into the neighboring English colony of Lagos, in which a railway into the interior has been completed. This decrease will probably continue until the French line is finished. The commerce is largely in the hands of the Germans, who, in 1901, furnished imports valued at 6,616,005 francs, and took exports valued at 4,940,037 francs. The French furnished imports valued at 3,300,907 francs and took exports valued at 4,006,283 francs. This condition of the colonial trade is due no doubt to the fact that French merchants are given no special privileges.

DAIRYING. The present scope of the dairy industry of the United States is shown by statistics issued by the Census Office during 1902, in a special bulletin. According to these returns, which are for the year 1900, over 18,000,000 cows are kept in the United States for the production of milk. These produce annually nearly 8,000,000,000 gallons of milk. One of the most striking features in the history of dairy farming is the transfer of butter and cheese-making from the farm to the factory. This change has been going on during the last half century, which covers the period of associated or cooperative dairying in the United States, and has increased rapidly in the past decade. The census of 1850 showed eight factories, all for cheese, the butter factory or creamery being a later development. The census of 1880 reported 3932 creameries and cheese factories, and of 1890, 4712, although the latter figures were not complete. The last census gave the number as 9242, including the condensed milk factories. These central plants have under their control 2050 skimming stations (connected with the creameries) and 747 other branches. Wisconsin, New York, and Iowa have the greatest number of these factories.

The total amount of butter produced in 1900 was about 1,524,000,000 pounds, fully two-thirds of which was made on farms, while the total cheese production was over 298,000,000 pounds, all but a small fraction made in the factories. The total value of the milk consumed as such for household purposes is estimated at $277,645,100, and of the cream, $4,435,444. There were 50 condensed-milk factories in the United States in 1900, which used 421,378,073 pounds of milk and produced 186,921,787 pounds of the condensed product, an increase of nearly 400 per cent. over the returns for 1900. The product was valued at nearly $12,000,000. The aggregate annual value of the dairy products of the United States is given by the census as $590,827,154. The consumption of dairy products per capita, aside from the milk consumed as such, is estimated as follows: Butter, 19 pounds; cheese, 3.3 pounds; condensed milk, 2.3 pounds.

The year 1902 was a very prosperous one for the dairy interests as a whole. In the eastern cities the prices for milk were the highest paid in years. In New York milk could hardly be obtained in sufficient quantity to meet the vast and growing demand. In New York markets the range of price for fancy fresh creamery butter during the year was from 19 cents for a few days in August to 33 cents in April—the highest point reached in years. The average for the year was 24¾ cents, over 3 cents higher than in 1901. The Chicago price ranged from 19.2 cents in August to 28.1 cents in December, and averaged 23.8 cents—the highest average by 3 cents for seven years. The demand for butter was unusually large, attributed to the general prosperity of the country and the employment of the people. No foreign outlet was needed for table grades as home markets paid prices much above a parity with England. The exports of both butter and cheese showed a marked falling off during 1902, the aggregate amounting to about $5,500,000, against nearly $8,000,000 in 1901.

The most notable event in the dairy trade of 1902 was the attempt to restrict the fraudulent substitution of colored oleomargarine for butter, by the imposition of a high tax. This legislation was consummated after three years of effort by the variously organized dairy interests. Under the new law colored oleomargarine is taxed 10 cents a pound, but when the product is not artificially colored the tax is reduced to one-quarter cent a pound. The tax under the old law was two cents a pound for either colored or uncolored oleomargarine. Renovated or process butter, i.e., inferior butter which has been treated to a renovating process and rechurned, is taxed the same as uncolored oleomargarine, and required to be properly labeled. The passage of this act is not regarded as an unconditional triumph for the dairy industry. It had a temporary effect on the price of creamery butter, but the ultimate result is variously estimated by manufacturers and dealers in butter. The attempt to impart to oleomargarine a natural yellow color by the use of a small quantity of palm oil in its manufacture has been ruled against by the Treasury Department; but means have been found of giving it a natural yellow color by treatment of the oleo oil and cottonseed oil used in making it, and thus evading the law. Oleomargarine colored naturally as yellow as butter is now being put upon the market and as it contains no artificial coloring matter is subject only to the one-quarter cent tax. Only the original package or tub is required to be labeled, and hence it is sold readily for butter. The returns of the Treasury Department give the production of oleomargarine for the year ended June 30, 1902, under the old law, as 126,316,436 pounds. The production of renovated butter for the same period is estimated at 36,000,000 pounds, although the returns for this are not complete.

One of the most interesting dairy investigations during 1902 was that of Jordan at the New York Experiment Station on the source of milk fat, i.e., the constituent of the food from which it is elaborated. It has been assumed by many that the elaboration of milk fat is largely influenced by the protein or nitrogenous material of the food, and by others that the fat in the food is sufficient to account for that produced in the milk, suggesting a possible transfer of the food fat to the milk. This question has an important bearing on the problem of feeding cows so as to maintain them at their maximum production without waste. Jordan found, in an ingenious series of experiments, that marked changes in the protein and the fat of the rations did not produce noticeable changes in the character or composition of the milk. Relatively large quantities of fat were produced which could not be accounted for by either the protein or fat of the food; and the conclusion was reached that, in certain cases at least, the milk fat must have been elaborated from the carbohydrates (the sugars, starch, etc.) of the food. The Vermont Experiment Station has demonstrated the value of apple pomace (refuse from cider mills) as a food for cows. It has been tried for several seasons, and in 1902 an average of 35 pounds a day per cow was fed continuously without any disadvantage whatever. The milk keeps up in yield and quality, and the cows do not suffer in health. The pomace is ensiled like corn silage, and keeps well until April. It can often be had for the hauling, or for a few cents a load; and the indications are that it has practically the same feeding value as corn silage.

Experiments at the Michigan Experiment Station have shown the value of sugar-beet pulp as a feed for cows; and Lindsey at the Massachusetts Station has shown the effect of the oil of feeding-stuffs on the consistency of the resulting butter.

The New Jersey Station has collected data very carefully for five years on the cost of milk production by its herd of about 25 cows, under the intensive system of dairy farming that is followed. Taking account of the expense for feed, labor, interest, and decrease in the value of the herd, the average cost of the milk was 2.38 cents a quart. The cows are now averaging an annual production of over 6500 pounds of milk each, with a fat content of 4.3 per cent. The milk is bottled and sold on a milk route, yielding a handsome profit. Under this system of dairy farming and growing soiling crops, the farm is increasing in fertility, and with the feeds purchased, more fertilizing materials are being returned to the soil in the manure than are being sold off the farm. During the past five years this total gain in fertilizing materials on a farm of about 65 acres is estimated as equivalent to 18½ tons of nitrate of soda, 20½ tons of acid phosphate, and 1¾ tons of muriate of potash.

The poor grade of cows kept by the average farmer continues to be a great drawback to profitable dairy farming. As illustrating this the reports made by some 30 creameries in Missouri show that the average amount paid by them for milk is about $30 a year per cow. Reports from nearly 1000 creameries in Iowa give about the same income. This income may be doubled by good feeding and management, as has been abundantly proved. Care in selection and breeding and feeding will soon raise the returns even above this. At one creamery in Missouri a number of patrons averaged from $45 to $60 per cow; and there are numerous instances of herds well selected and fed which return $60 to $75, and even $100 per cow.

A new method of milking, originated in Denmark and known as the Hegelund

method, has aroused considerable interest. It consists in manipulation of the udder preceding and following the milking proper, resulting in bringing down the last traces of milk, which, like the strippings, are unusually rich in fat. A test of the method by the Wisconsin Experiment Station, extending over four months and including a large number of cows, showed an average gain of over one pound of milk a day per cow, and one-tenth pound of butter fat, even where thorough milking by the ordinary method was practiced before. This it is calculated would mean, in Wisconsin alone, an annual increased yield of 30,000,000 pounds of butter fat, valued at about $6,000,000; while exhaustive milking would tend to maintain a maximum milk flow throughout the period of lactation and develop the dairy qualities of both the cow and her offspring.

Dairy bacteriology has given us abundant data on the number of bacteria in milk, but very little on the kinds of bacteria present, and this is a most important matter in the inspection of milk for cities and towns. It seems very fortunate, therefore, that a comparatively simple method has been devised by which the principal classes of bacteria present can be easily determined. The method depends upon the use of a specially prepared medium in the plate culture. Marshall, at the Michigan Experiment Station, has reported an extended study of the aeration of milk, which is quite commonly practiced to free the milk from odors and taints. The process is usually combined with cooling, but he shows that it is less effective at low temperatures than at body temperature, and that the milk should be first aerated in a pure atmosphere immediately after milking, and then cooled.

Jensen, in Switzerland, has reported a very extensive study of the cause of rancidity in butter. He finds this to be due, not to the action of air and sunlight, although these may cause butter to spoil by oxidation, but to the decomposition (cleavage) of the fat by certain micro-organisms—bacteria at first, and later two molds working together. These gain access to the butter from the air, through the cream, and through the water used in washing the butter. Exclusion of air and keeping the butter at low temperature retard the progress of rancidity.

H. E. Alvord of the United States Department of Agriculture has obtained a large amount of data as to the water content of American creamery butter, based on examination of samples from 400 creameries. The water was found to vary from 7.2 to 17.62 per cent., the average being 11.78 per cent., which is lower than was generally supposed. Seven-eighths of the samples contained between 10 and 14 per cent. of water. Marked progress has been made in the technical studies on the progress of ripening in cheese; and the advantages of controlling the process by means of cold storage have been tested on a large scale with satisfactory results.

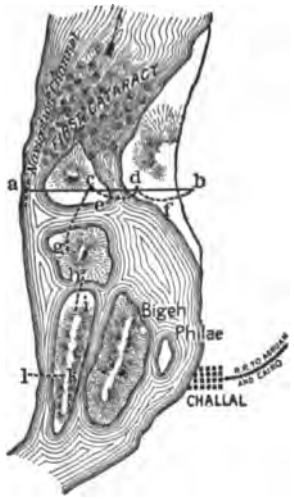
Among the books on dairying that appeared in 1902, the following may be mentioned as of a popular character: *The Creamery Patrons' Handbook*, Chicago, 1902, pp. 325, figs. 110, contains a large number of articles by experts on milk production, breeds of cows, care and handling of milk, and similar topics; *Creameries in Foreign Countries*, a special consular report issued by the Department of State, showing the status of the creamery industry in most of the European countries, opportunities for new enterprises, introduction of American dairy machinery, and other information of interest to manufacturers; *Milk in its Relation to Public Health*, by George M. Kober, a pamphlet of 230 pages, issued as a document (No. 441) of the United States Senate (Fifty-seventh Congress, first session); *Cheese, Butter, and Condensed Milk, Factory Product*, by Henry E. Alvord, Census Bulletin No. 189, pp. 29, a discussion of the development and present scope of the dairy industry, with statistics; *Die Hygiene der Milch*, by W. Steiger, Leipzig, 1902, pp. 244, plates 15, figs. 113.

DALNY, new Russian port on the Liao-tung peninsula. See MANCHURIA.

DALOU, JULES, one of the greatest and most prolific of modern French sculptors, died April 15, 1902, in Paris, where he was born in 1838. He studied in the *Académie des Beaux Arts*, and under Carpeaux and Duret, and made his début in the Salon in 1867. He was obliged to live in England for several years on account of having held a position in the Louvre under the Commune. Among other works produced at this time was "Une Berceuse," which was acquired by the Duke of Westminster. Having returned to France in 1879, he began exhibiting again in the Salon, and won a high place as an exponent of the naturalistic school. When the *Société Nationale de Beaux Arts* opened the opposition salon in 1890, he was one of its chief supporters and was chosen president of the department of sculpture. He designed the statue of Eugène Delacroix which was unveiled in the gardens of the Luxembourg in 1890. Some of his other pieces are "Mirabeau Delivering His Famous Address in the States-General, 1789," generally considered his masterpiece; "Triumph of the Republic;" and "Bacchus Consoling Ariadne." Among the various honors awarded him was the cross of the Legion of Honor, of which he became an officer in 1889.

DALZIEL, George, an English engraver, died in August, 1902, at Hampstead, England. He was born December 1, 1815, and in 1835 went to London to study wood-engraving under Charles Gray. With his brothers, John and Edward, he practiced his art for over fifty years and produced many fine-art illustrated books. He is remembered especially in connection with the brilliant period of English wood-engraving in the sixties, his engravings after the originals of Millais, Rossetti, Holman Hunt, and Burne-Jones having done much to popularize those artists. Great credit is due him for raising the artistic qualities of wood-engraving to the degree of excellence which it has now attained. Among the finely illustrated books produced by the brothers Dalziel may be mentioned *Poets of the Nineteenth Century; Stanton's Shakespeare,* illustrated by Sir John Gilbert; *Dalziel's Arabian Nights; Dalziel's Goldsmith; Dalziel's Bible Gallery.* He published three volumes of poems and several volumes of short stories.

DAMS. *Assuan Dam.*—The total cultivated area of Egypt to-day is about 5,000,000 acres. Each year a considerable area does not receive sufficient water for the growth of crops, and over 1,000,000 acres could be brought under cultivation in Lower Egypt if the water supply were adequate. Before much agricultural development can take place, therefore, some change must be brought about in the irrigation system by which a supplemental volume of water will be added to the low discharge of the Nile. There is an abundance of water each year from the middle of July to the middle of the following April, and a large part of the discharge of the Nile goes to the Mediterranean without being used. From the first of July until the first of December the water carries so much silt in suspension that it is almost out of the question to consider storage until during the winter months.



General Plan of the Nile Dam.
(The line *a b* shows the location of the dam as built, while the broken lines *l k, l h, g c e d f b* show the location recommended by Mr. Willcocks.)

The Nile furnishes about 93,000,000 acre-feet of water during an average year. It will only require about 27,000,000 acre-feet of water to supply all the land which is now under irrigation, or which can in the future be cultivated. This leaves 66,000,000 acre-feet of water which will still be unused. Reservoir construction has been discussed for many years. Many sites have been surveyed and examined by engineers and technical commissions, and the big dam at Assuan, 700 miles from the Mediterranean, was finally decided upon. A number of other sites were examined, but the granite formation just above the first cataract finally secured the majority vote, and the great dam, whose construction was begun in 1898, was completed July 30, 1902.

After the selection of this site, the engineers had one difficulty after another to overcome. The dam as originally planned by Mr. W. Willcocks was to run from one island to another where the material for the foundation was the best. The dam was to be slightly over 100 feet high and to be supplied with sluiceways and gates which would discharge the entire high-water flow of the Nile and enable water to be stored at any time desired. At this time the archæologists filed objections, holding that if the reservoir were constructed with a depth of water of 100 feet at the dam, the island of Philæ two miles above, would be completely submerged. This island contains a number of interesting temples, but none of great antiquity, most of them having been constructed during the Ptolemaic period. A compromise was finally reached. The height of the dam was reduced to store 66 feet of water instead of 100 feet. The island will be submerged during the time when the reservoir is full, but tourists can still see the temples and can visit them by boat. To guard against injury the foundations of the structures were strengthened.

The length of the dam is about 6000 feet. The entire structure rests upon a solid granite foundation. In some of the many channels of the river it was necessary to go 60 feet below the river bed before solid material was found. The dam is, therefore, over 120 feet in height at these places. Outside of this feature, construction presented no special difficulties. The neighboring hills furnished a fine quality of granite in almost unlimited quantities. Light railways were built to the quarries, and the dimension and rubble masonry stone was brought alongside the dam in this way. The Egyptian Railway connects directly with the steamers at Alexandria, and cement was delivered at Challal, within two miles of the dam site. It was transferred from the Egyptian Railway to the local construction road and carried direct to the points

THE DAMMING OF THE NILE—The Great Dam at Assouan. (Upper) South, or Upstream Side of Dam from West Bank. (Lower) Entrance to Lock of Navigation Channel from the South. (*Courtesy, Scientific American*)

where used. The heavy dimension stone, of which the face of the dam is constructed, was lifted by derricks from the cars to the place where the stone was to be put in the dam. The rubble masonry stone and mortar were carried up inclined planes by native workmen, who received about 15 cents a day for their labor. The masons were nearly all Italians. The dimension stone was cut at the quarry and all corners were protected by wooden frames until ready to lay in place in the dam. The dam contains about 1,000,000 cubic yards of masonry. The work on foundations and lower parts of the dam had to be carried on during low water. The numerous channels into which the Nile is divided favored this work, as temporary dams thrown across the channel in which the work was being carried on threw the water into others, enabling the masonry work to be prosecuted with great ease. During each June the dam had to be put in shape for the coming high water, and the entire year's work had to be planned so as to permit the water to run over the structure without doing it injury.

The depth of the water at the dam will be 65.6 feet when the reservoir is full. The roadway running along the top of that portion of the dam containing sluiceways is 16.4 feet wide. A large part of the eastern end of the dam, containing no sluiceways, is narrower and the roadway is reduced to 9.8 feet. The rubble masonry of the body of the dam is laid in 4:1 cement mortar and the down stream slope is faced with squared rubble laid in the same mortar and pointed in 2:1 cement mortar. The upstream slope, being submerged a large part of the year, is faced with squared rubble laid in 2:1 cement mortar and pointed with the same. The batter of the lower slope of the dam is 1½ on 1. Buttresses 3¾ feet thick and 26 feet wide are located between each set of ten sluiceways, or about 240 feet apart. The buttresses are added to the dam more for the sake of appearance than because they are needed to increase the strength of the wall.

There are 180 sluices, of which 140 are on a low level and 40 are on a high level, to be operated when the reservoir is full or nearly so. The area of the lower sluices is 150 square feet each. The upper sluices have only half so great an area. Fifty of the lower sluices are supplied with ordinary regulating gates furnished with rollers. The remaining 90 gates are of an improved design, recommended by Mr. Willcocks. A number of the lower sluices have cast-iron linings. These were adopted not so much because they were cheaper or because they would differ in permanency from the masonry sluiceways, but because they could be completed during the period between two seasons of high water. The gates are raised by stationary winches, and as a precaution there is a traveling winch that can be propelled to any point along the dam. In addition to this, the dam is supplied with emergency gates, which roll down from above, covering the opening in the sluiceways. A navigation channel has been constructed along the western margin of the river, which will permit small boats to ascend the cataract. It is proposed to close the lower gates about the first of December each year and store water until some time in May. When water is first drawn off it will pass through the high-level sluiceways, the lower gates not being operated until the head has been greatly reduced.

The Assuan reservoir will store practically all of the flood water of the Nile after the first of December and before the high water of the following year. The water of the Nile during August, September, October, and November carries large volumes of silt. On this account the engineers of the dam are afraid to close the gates of the reservoir before December 1. How the storage system is to be extended with profit has not yet been determined.

The dam will cost Egypt about $9,000,000. Payment is to be made in sixty semi-annual installments of $382,845 each. This will make the total cost of the dam, including interest, $22,970,000. In addition to this burden, Egypt has raised $5,756,600 for improving the canal systems, especially those of Upper Egypt, so that the water supplied by the reservoir may be fully utilized. The dam was originally designed by Mr. W. Willcocks. Mr. Maurice Fitzmaurice was resident engineer-in-chief, and Sir Benjamin Baker was consulting engineer. The work of construction was done by Sir John Aird and Company. The foundation stone was laid February 2, 1899, by the Duke of Connaught. The formal opening, December 10, 1902, took place in the presence of the Duke and Duchess of Connaught, the Khedive, Lord and Lady Cromer, and many officials and other distinguished persons.

The Tabeaud Dam, near Jackson, Cal., one of the highest earth dams ever built, was practically completed at the very close of 1901, but was not ready for service until 1902. The crest of this dam is 120 feet above the rock foundation vertically beneath it, and 123 feet above the intersection of the lower slope of the dam and the natural surface of the ground. The maximum depth of water in the reservoir is 92 feet, and the available storage capacity is some 55,000,000 cubic feet, or over 400,000,000 gallons. The dam is 636 feet long and 20 feet wide on top, and 50 to 100 feet long and 620 feet wide at the base. It was built as a part of the electrical power development of Jackson. A long description of the dam by Mr. Burr Bassell,

engineer-in-charge of construction, is given in *Engineering News* (New York) for July 10, 1902. A résumé of a large number of failures of dams and reservoirs in the United States was given by Mr. William B. Hill, chief engineer of the Croton Aqueduct Commission, New York City, in his presidential address before the American Water Works Association in June, 1902. (*Proceedings*, as above, Elmira, N. Y., 1902.)

DANISH WEST INDIES, three islands of the Virgin group in the West Indies lying east of Porto Rico, constitute a colony of Denmark. Their combined area is 138 square miles and the aggregate population something over 35,000. St. Croix, the largest, has an area of 84 square miles and a population of 19,783; St. Thomas, area of 33 square miles and population 14,389; and St. John, area 21 square miles and population 984. Christianstadt, on St. Croix, is the capital, and Charlotte Amalie, on St. Thomas, the principal port, has one of the finest harbors in the West Indies and a population of 10,000. The inhabitants are largely negroes, speaking a Spanish dialect, but English is spoken in the ports. There is a governor-general appointed by the Danish crown, but otherwise the colony has almost complete self-government, the legislative power being vested in two colonial councils, one for each of the two districts into which the islands are divided, three-fourths of whose members are elected. The budget, which is controlled by the colonial councils, shows an increasing annual deficit which is partly met by subventions from the Danish government. The budget figures for the fiscal year 1900 showed receipts of $250,385 and expenditures of $432,901, leaving a deficit of $182,516. Two-thirds of the colonial revenue is derived from import duties, and there is an export duty of 5 per cent. on sugar. The production of sugar, formerly carried on extensively in St. Croix, has fallen off greatly in the past decade, but sugar is still the staple product of the island, and is the principal export. Rum and molasses are also exported. The trade is largely with the United States, which, in 1902, furnished imports to the value of $458,071 and received exports $638,839, both figures considerably under those for 1901. The trade with Denmark, which was once very considerable, has been steadily decreasing for several years, the imports from the mother country having decreased from $425,000 in 1883 to $15,812 in 1900, and the exports from the islands to Denmark showing a decrease from $98,000 to $23,048 in the same period.

History: The Failure of the Purchase Treaty.—In December, 1901, it was announced that an agreement for the sale of the Danish West Indian Islands to the United States had been concluded at Washington after prolonged negotiations. A treaty providing for the sale of the islands for the sum of $5,000,000 in gold, with provisions safe-guarding the rights of the inhabitants, was signed at Washington on January 24, 1902, by John Hay, secretary of State, on behalf of the United States, and Constantine Brun, Danish minister at Washington, for Denmark. This treaty was ratified by the United States Senate on February 17 following. On March 19 the Folkething, the lower house of the Danish Rigsdag, voted to ratify the treaty, but on April 9 the Landsthing, the upper house, voted to defer action until after a vote had been taken in the islands for or against the sale, by the electors qualified to vote for the colonial council. Without action the time in which ratification of the treaty by the Danish Rigsdag would have expired June 24, 1902, but on May 27, it was announced that King Christian, of Denmark, had granted an extension of time for ratification for one year, or until June 24, 1903. As the treaty was a ministerial measure, the success of the Ministerial party at the elections early in September was accepted as a practical assurance that the ratification would follow at the autumn session of the parliament. Before the matter came to a vote, however, it was evident that opposition to the sale had been gaining strength among the members, although the popular feeling seemed to be still strongly in favor of the ministerial programme of sale. The vote on the treaty was taken on October 22, 1902, and resulted in a failure to ratify by a tie vote of 32 to 32. Two old and infirm members of the opposition were carried into the chamber (Landsthing) on litters in order to cast their votes against the sale. Before the vote was taken Premier Deuntzer announced that the only alternative to the sale was a heavy increase in expenditure for the maintenance of the islands, which since 1870 has amounted to considerably over $2,000,000. The ministry chose to consider the tie vote on the treaty as an insufficient reason for their resignation, and a proposal made by them immediately after the vote was announced, providing for the appointment of a commission to proceed to the islands and report as to what measures would be necessary for improving their economic condition, was agreed to unanimously. It seemed to be considered probable, both at Washington and at Copenhagen, that after the commission had reported as to the practical impossibility of relieving the existing economic depression, or of lightening the increasing expense to Denmark, the parliament would reconsider its action, and ratify the treaty before the expiration of the time limit on June 24, 1903.

The Christmas Bribery Charges.—In the United States House of Representatives on March 27, 1902, James D. Richardson, a representative from Tennessee and

Democratic leader in the House, called for an investigation of certain charges made by a "Captain" Walter Christmas, formerly a diplomatic agent of the Danish government, who had declared that during the negotiations two years or more before, he had been promised a fund of $500,000 by the Danish foreign office with which to bribe senators, members of Congress, and other influential Americans and American newspapers to favor the purchase of the Danish islands, and that by promising such payments he had been able to secure the cooperation of several men of influence. The committee of inquiry called for by Mr. Richardson's resolution was appointed and found the charges entirely baseless, and on March 31, an explicit statement of denial was made by the Danish government to the effect that Christmas was never its agent in any matter having any relation to the sale of the islands or that any money was ever paid to him in connection therewith.

DARTMOUTH COLLEGE, Hanover, N. H., founded 1769. President, William J. Tucker, D.D., LL.D. The chief development during 1902 was the adoption of the so-called group-system of studies. The work of freshman year is prescribed as heretofore, with some range in the choice of those who enter for the B.S. degree, among the sciences. After freshman year the electives are restricted only by the requirements of a major study, which consists of three hours per week each for two years, to be selected from different groups of studies. The three groups comprise: (1) language and literature; (2) mathematics and natural and physical sciences; (3) history, social sciences, and philosophy. By a recent vote of the trustees the degree of bachelor of letters will not be conferred after June, 1905; but the degree of bachelor of arts will be conferred after courses of study which must include Latin with other requirements, but admits of choice between Greek and French or German. During the academic year 1901-02, the college had an attendance of 789, a faculty of 66, an income of $175,000, and a library of about 100,000 volumes.

D'ASSISE, Don Francisco, Duke of Cadiz, died at Epinay, France, April 16, 1902. He was born in Aranjuez, Spain, May 13, 1822, the son of the Infante Francisco de Paul and of the Infanta Luisa. In 1846 he married his cousin, Queen Isabella II. of Spain, and was by courtesy proclaimed king, but his participation and influence in public affairs were always very slight. The revolution of 1868, which forced the queen to abdicate two years later, drove the royal family from Spain, and soon afterward a formal separation was announced. Don Francisco passed the last years of his life in seclusion at Epinay.

DAVIDSON, Andrew Bruce, a distinguished Scottish Hebrew scholar, died January 26, 1902, at Edinburgh. He was born at Aberdeen in 1840, studied for the ministry, and was appointed professor of Hebrew and Old Testament Exegesis in the New College of the United Free Church of Scotland in 1863, the year of his ordination. He was a member of the Old Testament Revision Committee, and published authoritative contributions to Hebrew literature, including *A Commentary on the Book of Job* (1862); *An Introductory Hebrew Grammar* (1874), which has been widely accepted both in the United States and Great Britain; and *The Epistle to the Hebrews* (1882).

DAVIS, George Whitefield, attained the rank of major-general in the United States Army in June, 1902, and in September following, was appointed to succeed Gen. Adna R. Chaffee as commander-in-chief of the United States forces in the Philippines. He was born at Thompson, Conn., July 26, 1839, received an academic education and in November, 1861, enlisted in the Eleventh Regiment, Connecticut Volunteer Infantry, rising to the rank of major, and in 1867 received a commission as captain in the Fourteenth United States Infantry. From 1876 to 1885 he was specially detailed as assistant-engineer in charge of the construction of the Washington Monument, and later served as a member of the War Records Board of Publication in the War Department. He became major in the Eleventh Infantry in 1894, lieutenant-colonel of the Fourteenth Infantry in 1898, colonel of the Twenty-third Infantry in 1899, and brigadier-general in 1900. During the war with Spain he was appointed by President McKinley a brigadier-general of volunteers, and placed in command of a division, but the war came to an end before he had had an opportunity of taking part in any fighting. After the war he was made commander of the Department of Pinar del Rio, Cuba, and in May, 1899, was appointed military governor of Porto Rico. Early in 1900 he was sent to the Philippines as inspector-general of the United States forces.

DAVIS, Noah, former chief-justice of the New York Supreme Court, died in New York City, March 20, 1902. He was born at Haverhill, N. H., September 10, 1818, removed with his parents to Albion, N. Y., in 1825, and after studying law in the Lima (N. Y.) Seminary, was admitted to the bar in 1841. From 1857 to 1868 he was on the Supreme Court bench, but resigned in the latter year, and from 1869 to 1870 served as a Republican member of Congress. Upon President Grant's appointment he was United States District-Attorney for the southern district of New York

from 1870 to 1872, when he returned to the Supreme Court bench, and two years later was made presiding justice. Among the more important trials to come up before him were those of Edward S. Stokes for the murder of "Jim" Fisk, Jr., and of William M. Tweed for corruption. In 1887 he resumed active practice in New York City, after a judicial career marked by broad learning and intellectual strength, and up to the time of his retirement in 1901 was a prominent figure in legal life. In 1867 Judge Davis was a candidate for the United States Senate but was defeated by Roscoe Conkling in a close contest.

DAWSON, chief town of the Canadian district of Yukon (*q.v.*).

DEAN, JOHN WARD, editor of the register of the New England Historical and Genealogical Society, died at Medford, Mass., January 22, 1902. He was born in Wiscasset, Me., March 13, 1815, and from 1875 until his death was librarian of the New England Historical Genealogical Society. He edited the *New England Bibliopolist* (9 vols., 1880-98), and was the author of *Memoir of Nathaniel Ward; Memoir of Michael Wigglesworth;* and *Story of the Embarkation of Cromwell and His Friends for New England.*

DEATH-RATE. See VITAL STATISTICS.

DE GRAFFENRIED, REESE CALHOUN, Congressman from Texas, died in Washington, D. C., August 28, 1902. He was born in Franklin, Tenn., in 1859, and graduated at the University of Tennessee in 1878 and at the Lebanon Law School in the year following. After a year's legal practice in Chattanooga he removed to Texas, where he became prominent among those connected with the construction of the Texas and Pacific Railroad. He resumed in 1883 the practice of law in Longview, Tex., and for two months served as county attorney. In 1888 he was a presidential elector, was an unsuccessful candidate for Congress in 1890, and from 1897 until his death was the democratic representative for the Third Texas district.

DEHERAIN, PIERRE PAUL, a French agriculturist, died in Paris, December 7, 1902. Born in Paris in 1830, he took courses in the faculty of sciences, receiving the doctor's degree in 1860, and taught first in the Central School of Architecture as professor of chemistry. In 1865 he became professor in the Agricultural School at Grignon. An assistant naturalist after 1872 in the Museum for Education in Paris, in 1880 he was made titular professor of vegetable physiology. In 1877 he was elected to the Academy of Sciences in the division of agriculture. His investigations, especially in problems of nitrification, the loss of nitrogen from the soil, and the value of cover crops as an aid to improvement, are of great interest. His *Annales agronomiques,* founded in 1875, he continued until the time of his death. He published *Chimie et physique horticoles* (1854); *Recherches sur l'emploi agricole des phosphates* (1860); *Cours de chimie agricole* (1872); *Traité de chimie agricole* (1892); *Les engrais les ferments de la terre* (1895). He was decorated by the Legion of Honor in 1875, and made an officer in 1889.

DELAWARE, an eastern State of the United States, has an area of 2,050 square miles. The capital is Dover. The population in 1900 was 184,735; in June, 1902, as estimated by the government actuary, it was 189,000. The populations of the two largest cities in 1900 were: Wilmington, 76,508; New Castle, 3380.

Agriculture.—According to the *Crop Reporter,* nearly all agricultural crops were large in Delaware in 1902. The principal field crop was corn, with an acreage of 187,134 acres and a yield of 5,239,752 bushels valued at $2,567,478. Wheat with the remarkable acreage for so small a State of 108,660 acres, gave a yield of 16.5 bushels per acre, or a total of 1,792,890 bushels worth $1,344,668. In the autumn 117,908 acres were sown to wheat for the 1903 crop. Hay was an average crop with 76,373 acres, yielding 83,247 tons, with a value of $1,201,254. About 16,000 acres of tomatoes were grown. According to the *American Grocer,* 750,670 cases, each containing two dozen cans, were packed—a pack exceeded by only Maryland and Indiana. Six thousand acres of potatoes were grown, the average yield per acre being 79 bushels as against 55 in 1901, and 48 in 1900. The yield of 474,000 bushels was valued at $241,740. Fruit and garden products were unusually abundant, but no statistics are available for these important crops.

Political.—J. Edward Addicks, leader of the Union Republican faction in the State, who has been attempting to secure an election to the United States Senate since 1888, renewed his efforts during 1902, to obtain control of the State legislature, and thus attain the goal of his ambition. Delaware has not been represented in the upper house of Congress since the expiration of Mr. Kenney's term in 1901. The followers of Addicks in the legislature had offered, in 1901, to allow any representative of the regular or DuPont Republicans to be elected for the short term of the Senate expiring in 1905, if DuPont legislators would join in electing Addicks for the term ending in March, 1907. The Regulars having refused to agree to this scheme, Addicks failed to secure the requisite number of votes, though ballots were taken every day until the legislature adjourned. His chances were not materially improved

by the events of 1902, and he based great expectations upon the results of the fall election. On September 2, the Union Republican State Convention in session at Dover, nominated William M. Byrne United States district-attorney for the district of Delaware for Congressman. The Regular Republicans refused to accept Byrne's nomination, and renominated Congressman Lewis Heisler Ball. Both factions united in the nomination of Paul B. Norman for state auditor and Martin B. Burriss for state treasurer, although both were anti-Addicks men; and the contest centred on the election of congressmen and members of the State legislature. In three districts the Democrats supported the Regular Republican nominees for the legislature. It was alleged that in the lower counties, which are nominally Democratic and have received most attention from Addicks, bribery was more rife than ever, though both parties were culpable. Votes, it was alleged, sold as high as $60, the average price paid for a negro's vote being $10. The voter's-assistant law, passed under Addicks's direction, allowing a voter to take a friend with him into the booth, did much to foster corruption. On November 5, Addicks in a letter addressed to the editor of the Philadelphia *Ledger* and printed in that journal, asserted that large numbers of Republicans had voted the straight Democratic ticket, and that in strong Republican districts the Democrats had placed upon the ticket the Republican candidates in order to secure control of the legislature. He predicted that at least twenty-seven Republicans would go into joint caucus and elect two senators. He also declared that there was no power which could induce him to withdraw as a candidate.

Both Byrne and Ball were defeated in the election by Houston, the Democratic nominee, whose plurality over Byrne was 3398. Byrne, who by President Roosevelt's advice, had resigned his office upon accepting his nomination, was now reappointed, to the great dissatisfaction of the Regulars, who regarded this as a recognition on the President's part of the Addicks faction as representing the Republicans of Delaware. President Roosevelt took occasion to defend his course, saying that similar reappointments had been made in other States, and that the one in question was based upon considerations of personal merit and of satisfactory service only. Owing to the disputes in two or more districts, full returns were not published until December 28, when it appeared that on joint ballot there would be 28 Republicans, 7 of whom were known to be opposed to Addicks, 23 Democrats and one tie, this being in the ninth district of Kent County. At a special election December 30, called by Governor Hunn, J. W. Powell, Union Republican received 496 votes, a plurality of 192 over Solomon Sapp, Democrat. This gave Addicks 22 votes on joint ballot, 27 being necessary to a choice. The year 1902 closed with the State unrepresented in the Senate.

Conventions and Platforms.—The Republican State Convention was held on August 19. The platform endorsed the administration of President Roosevelt and called for his nomination in 1904. Regarding trusts the platform said "We favor State and Federal legislation to regulate combinations of capital that unduly enhance the prices of the necessaries of life, and we favor the modification of revenue laws that strengthen this combination." The views of the President regarding Cuban reciprocity were approved. The attacks of the Democratic party on the military administration were strongly condemned.

The Democratic State Convention was held at Dover on September 16. The principal plank, apart from the usual declarations of Democratic doctrine, had reference to the existing condition of affairs in the State regarding the election of United States senators. In this connection, the platform says: "We, the delegates of the Democratic voters of the State of Delaware, in State convention assembled, do declare that the question of overwhelming importance to the people of this State is whether the State shall be wholly controlled by its criminal and ignorant classes under the leadership of a commercial adventurer and his creatures, who, disgracing and corrupting our politics as far as they can, only know enough of the traditions of our State to revile them and to attack the memories of those honorable and upright men under whose guidance and advice our State maintained her high position in the Union."

Other Events.—The E. J. du Pont de Nemours Company, with capital of $20,000,000, was chartered at Dover on February 27, 1902, for the purpose of manufacturing gunpowder and other explosives. It succeeded the powder company of which the late Eugene du Pont was president, and which was founded in 1782. On April 4, the General Electric Company, with a capital of $1,000,000, pledged to build a road from Woodland Beach to Milford, surrendered its charter and all its rights and privileges to the city of Dover. These were taken over by J. E. Addicks, who purposed to form two companies, of which he would be president, the Milford Construction and the Delaware Electric Railway, the former to build trolley lines in lower Delaware; the latter to operate the system. On August 11 the Harlan and Hollingsworth Shipbuilding Plant at Wilmington was transferred to the United States Shipbuilding Company for the sum of $1,500,000.

Elections.—At the regular biennial State election held November 4, 1902, the officers voted for were treasurer and auditor. The vote for treasurer was Burris (Rep.), 20,705, and Hossinger (Dem.), 16,652. The State legislature for 1903 will be composed of 10 Republicans and 7 Democrats in the Senate, and 20 Republicans and 14 Democrats in the House.

State Officers.—For 1902 and 1903: Governor, John Hunn (elected for four years, term ending January, 1905); lieutenant-governor, Philip L. Cannon; secretary of state, Caleb R. Layton; treasurer, Martin B. Burris; auditor, P. B. Norman; attorney-general, Herbert H. Ward; commissioner of insurance, George W. Marshall—all Republicans.

Supreme Court: Chancellor, John R. Nicholson; chief justice, Chas. B. Lore; associate justices, Ignatius C. Grubb, W. C. Spruance, James Pennewill, and William H. Boyce—all Democrats except Spruance and Pennewill, Republicans.

For Congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

DENMARK, a constitutional monarchy of Europe lying to the north of Germany. The capital is Copenhagen.

Area and Population.—The area of Denmark (the peninsula of Jutland and islands in the Baltic) is 14,848 square miles, or with the Faroe Islands 15,360 square miles. The total population, acording to the revised figures of the census of February 1, 1901, was 2,464,770, as against 2,185,335 on February 1, 1890. The inhabitants of the Faroe Islands numbered 12,955 at the earlier date and 15,230 at the later. During the eleven-year period the rural population in Denmark proper increased about 4.3 per cent. and the urban 29.7 per cent. Copenhagen had 378,235 inhabitants (with suburbs, 476,806). Emigration, chiefly to the United States, amounted to 2799 in 1899 and 3570 in 1900. The established church is the Lutheran, but religious toleration prevails. Elementary instruction is free and compulsory.

Government.—The executive authority is vested in the king, who is assisted by a ministry of eight members, appointed by him and responsible to the lower house of the parliament. This body, the Rigsdag, consists of the Landsthing, or upper house (54 members), and the Folkething, or lower house (114 members). Members of the Landsthing, which in general represents the landed and conservative interests, are in part appointed by the crown, and in part chosen by certain electoral bodies; members of the Folkething are elected by popular vote. The sovereign in 1902 was Christian IX., who was born in 1818 and ascended the throne in 1863. The heir-apparent was his son, Prince Frederick, born in 1843. On July 23, 1901, Prof. J. U. Deuntzer, of the University of Copenhagen, formed a ministry (state council), representing the Left, to succeed the Conservative ministry of M. Hannibal de Sehested. This ministry, which continued during 1902, was as follows: Premier and minister for foreign affairs, Professor Deuntzer; minister of the interior, Enevold Sörenson; justice, P. A. Alberti; finance, Christopher F. Hage; war, Col. W. H. O. Madsen; marine, Rear-Admiral F. H. Jöhnke; public instruction and worship, J. C. Christensen; agriculture, M. Ole Hansen; public works, M. Hörup, who had perhaps unequaled influence in the Radical party. He died February 16, 1900. His portfolio was taken over by M. Hage.

Army and Navy.—All able-bodied men on reaching the age of twenty-two years are liable to military service. The peace strength of the army in 1901 was 824 officers and 8945 men; war strength, 1448 officers and 60,134 men. The navy comprises 5 coast-defence armor-clads, 6 third-class cruisers, 7 gunboats, 34 torpedo boats, a turret ship, a barbette ship, and a torpedo ship.

Finance.—The monetary standard is gold and the unit of value the krone, worth 26.8 cents. Revenue and expenditure in kroner for fiscal years ending March 31, have been: 1899, 71,193,060 and 76,259,212 respectively; 1900, 72,561,487 and 77,509,052; 1901, 78,859,357 and 78,883,529. The estimated revenue and expenditure for the fiscal year 1903 were 69,445,585 kroner and 74,911,809 kroner respectively; for 1904, 70,200,000 and 74,500,000 respectively. The largest items of revenue in the former budget were indirect taxes (mainly customs and excise), 51,405,630 kroner, and direct taxes, 10,886,300 kroner. The largest items of expenditure were for the reduction of the public debt and the improvement of state property, 13,693,359 kroner; the army, 10,775,338; service of the debt, 8,126,509; public instruction and worship, 7,039,457; the navy, 6,875,614; ministry of the interior, 6,075,809; of justice, 5,012,453. On March 31, 1901, the total public debt amounted to 217,294,224 kroner, of which 149,012,250 kroner constituted the foreign debt.

Industries, Commerce, etc.—The principal industries are agriculture and dairy-farming. The leading products include beets, oats, and other cereals, potatoes, and butter and other animal produce. In 1899 the general imports and exports were valued at 492,079,000 kroner and 364,521,000 kroner respectively; in 1900, 526,803,000

and 393,570,000 respectively. The special commerce (that is, imports for consumption and exports of Danish production or manufacture) has been in kroner as follows:

	1898	1899	1900	1901
Imports	367,328,000	399,768,000	416,174,000	397,210,000
Exports	238,525,000	270,129,000	281,915,000	292,000,000

The values in kroner of the leading imports in 1900 were: Cereals, 66,873,000; textile manufactures, 58,372,000; coal, 47,362,000; metals and hardware, 47,081,000. The most important exports of home produce were butter, pork, eggs, and lard, which aggregated a value of 197,627,000 kroner; in 1900 there was also an importation of these commodities amounting to 52,037,000 kroner. Almost the entire butter export, amounting to over 147,000,000 kroner in 1900, goes to Great Britain. In 1900 the leading countries in the import trade were: Germany, 153,568,000 kroner; Great Britain, 108,093,000; United States, 77,839,000; Norway and Sweden, 60,503,000; Russia, 49,051,000. The most important countries receiving Danish (general) exports in 1900 were: Great Britain, 233,467,000 kroner; Germany, 67,765,000; Norway and Sweden, 50,222,000; Russia, 23,010,000; United States, 6,909,000.

In 1901 there were open to traffic 1810 miles of railway, of which 1108 miles were owned by the state. The total cost of the state lines up to March 31, 1901, was 247,492,711 kroner.

History.—Government in Denmark under its first ministry of the Left since 1859 has hardly been so fruitful of reform and progress as was hoped. In this ministry, formed July 23, 1901, Professor Deuntzer became premier and minister of foreign affairs, and M. Alberti minister of justice. The portfolio of foreign affairs in Denmark is not of relatively great importance, while that of justice has large powers and influence. So it came about in 1902 that M. Alberti, who, unlike Professor Deuntzer, is ever ready to forward his own cause with vigor, overshadowed and sometimes antagonized the premier. The main business before the Rigsdag in both the spring and the autumn sessions was the consideration of the treaty ceding the islands of St. Thomas, St. Croix, and St. John to the United States. For an account of this see DANISH WEST INDIES. In general further parliamentary action was not of great importance except the measure providing for reforms of the judiciary, under discussion in the autumn session. The spring session revealed the increasing divergence between the Left and the Socialists in the Folkething, while later in the year the Moderate Left party was seriously weakened by the defection of some of its members to the Radicals. The September elections of 1902 changed the Landsthing to the following composition: Conservatives, 29; Independent Conservatives, 11; Radicals, 25, and one Socialist. The Folkething continues strongly Liberal. The parliament reconvened October 6, 1902, when the Folkething elected a new president, M. Hermann Trier. In presenting the budget, M. Hage, minister of finance, said there was no prospect of checking the steady increase in expenditure, and that further taxation would be necessary. Aside from the American treaty, mentioned above, the parliament was occupied chiefly with the judiciary reform bill, which at the end of the year seemed assured of enactment. Another proposed law receiving considerable attention provided that civil marriage be obligatory. And at the end of the year an act was passed increasing copyright protection. The former president of the Folkething, Sophus Högsbro, died January 15, 1902, at the age of eighty years. As already mentioned, M. Hörup, minister of public works, died February 16. On May 25, President Emile Loubet, returning from St. Petersburg, visited the Danish court at Copenhagen, where he was cordially received. Apparently with small warrant this occurrence led to the supposition on the part of some writers that Denmark, whose geographical position commands Russia's outlet to the Atlantic, was to be drawn into the Franco-Russian alliance. It is more likely that Denmark desires a guaranteed neutrality.

In November, 1902, M. Jean A. A. J. Jusserand, French minister to Denmark, was appointed ambassador at Washington. In November the Crown Prince Frederick visited the court at Berlin. This in some quarters was regarded as significant of a change in Denmark's policy, which, since Prussia took Schleswig-Holstein, has been steadily anti-German.

For the colonies of Denmark, see DANISH WEST INDIES, GREENLAND, and ICELAND.

DE VERE, AUBREY THOMAS, an Irish poet, from the death of Tennyson the dean of English verse, died in London, January 21, 1902. Born at Curragh Chase, Ireland, January 10, 1814, he was educated at Trinity College, Dublin, subsequently passed some time at Rydal Mount, and in 1842 published his first volume, *The Waldenses, or the Fall of Rora: A Lyrical Tale.* In the year following, his *Search After Proserpine* brought him into favorable prominence as a maker of graceful

verse. Other poetical works are: *Irish Odes* (1869), *The Legends of St. Patrick* (1872), *Legends of the Saxon Saints* (1879), *St. Peter's Chains* (1888), and the dramas *Alexander the Great* (1874), and *St. Thomas of Canterbury* (1876). His prose includes *Essays Chiefly on Poetry* (1887), *Essays Chiefly Literary and Ethical* (1889), and *Recollections* (1897). From 1851 a Roman Catholic, yet always an aristocrat and Unionist on the Home Rule question, he wrote a number of reconciliatory books on the connection of the Church with Irish politics. A classical student of high attainment, with much of the Greek temper evidenced in his work, he was likewise interested in the Celtic revival of the late nineteenth century. Among his best poems are his sonnets, specimens of which are to be found in many anthologies. At Rydal Mount he came under the inspiration of Wordsworth, of whom he writes interestingly in his essays.

DE WINDT, Harry, an English traveller and journalist, completed in August, 1902, his overland journey from Paris to New York. He was born in Paris, in April, 1856, and was educated at Magdalene College, Cambridge, after which he went to Sarawak, where he served from 1876 to 1878 with his brother-in-law, Rajah Brooks. In 1887 he undertook his first extended trip, covering the distance from Peking to Calais by land, a feat never before accomplished. In 1889 he rode overland from India, via Persia, to Russia, whence in the next year he proceeded to inspect the prisons of western Siberia, and later visited the mines and exile colonies of eastern Siberia. He next conceived the idea of making the journey overland between New York and Paris, and in 1895 made his first attempt, starting from New York. The attempt ended in disaster, and De Windt almost lost his life in crossing Bering Straits, being rescued by a whaler. In 1897 he explored the Klondike, and in 1900 visited Russia and Finland as special correspondent for the London *Daily Express*. In the latter part of 1901, in the interest of the same paper, he started on a second attempt to make the journey from Paris to New York, and after an adventurous journey of 248 days successfully accomplished it, going the entire distance overland, except so much of it as took him across Bering Sea. He has written many accounts of his travels, among which are *On the Equator* (1882), *From Pekin to Calais by Land* (1887), *Siberia As It Is* (1892), *The New Siberia* (1895), *Through the Gold Fields of Alaska* (1898), and *Finland As It Is* (1901).

DE WITT, William Hedges, an American jurist and politician, died at Butte, Mont., January 19, 1902. He was born in New York City, March 16, 1853, graduated at Hamilton College in 1875, and at the Columbia Law School in 1878. Being admitted to the New York bar in 1878 and to the Montana bar in 1879, he practiced at Helena until 1881, when he made Butte his permanent home. He was United States district attorney for Montana from 1883 to 1885, county attorney from 1886 to 1889, and served as justice of the Montana Supreme Court from 1889 to 1896. From 1900 until his death, he was a member of the Republican national committee.

DIPHTHERIA. See Antitoxin.

DISCIPLES OF CHRIST, popularly known as Campbellites or Campbellite Baptists, a name derived from that of their early leader. The Christian Church was organized in 1827, the movement which resulted in its establishment—a movement for Christian union on the basis of a pure New Testament church—having originated in Kentucky four years after the opening of the nineteenth century. The denomination has had an extraordinary growth, and the year 1902 proved no exception in its history of progress, a gain of 26,836 members having been made. More than 200 houses of worship were dedicated during the past year, and 250 new congregations were organized. There are now 10,957 churches, with 6477 ministers and 1,207,377 communicants; and 8271 Bible schools having an enrollment of 796,699 officers and teachers and scholars. These statistics represent the United States only, and in addition the Disciples have a constituency of some 50,000 in British America, Australia, Great Britain, and in the foreign missionary fields, where work is conducted in twelve foreign countries. In the United States the church is strongest throughout the Central section. The progress of the missionary work is one of the most noteworthy features of the denomination, this activity now being carried on through four national societies, which raised during 1902 a total of $464,902. The total contributions of the church aggregated $6,193,967, including $624,214 for missionary enterprises and $254,753 for education and benevolences, the balance being devoted to local church work. State and territorial missionary societies number more than forty, and there are also city and district organizations. The educational interests of the Christian Church are represented by a score of higher institutions, of which two, in Louisville, Ky., and Edwards, Miss., are for colored students. Nearly fifty periodicals, weekly, monthly, and quarterly, are issued, six being published in behalf of missionary work.

The national convention of the Disciples of Christ in 1902, held October 16-23

in Omaha, Neb., was noteworthy as one of the largest missionary rallies in the history of the denomination. The prominence of home and foreign missions was emphasized by the address of the secretary of the Student Volunteer Movement, John L. Mott, on the evangelization of the world. The Rev. H. O. Breeden, president of the American Christian Missionary Society, spoke on the "Gospel for This Age—The Gospel of the Person," as contrasted with the "Gospel of the Church" (Catholicism) and the "Gospel of the Book" (Protestantism). Perhaps the most significant action of the convention was its record in favor of the movement for interdenominational federation, a tendency that has become most marked in the middle West, where a number of State and minor federation organizations have been formed. The secretary of the National Federation Society addressed the meeting, and there was also an address on "Christian Union the Paramount Issue," and the only objection urged against the measure was that it implied recognition of "denominationalism." The session of next year will convene in Detroit, Mich.

DISTRICT OF COLUMBIA, the seat of the government of the United States, coextensive with the city of Washington, was formed March 30, 1791, from the cession of land amounting to 100 square miles, made to the United States by the States of Maryland and Virginia. It formerly comprised two counties, Washington and Alexandria, but the latter was re-ceded to Virginia on July 9, 1846, and in 1874 the county government at Washington was abolished. The gross area of the district is now 69 square miles. The population in 1900 was 278,718; in June, 1902, as estimated by the government actuary, it was 292,000.

Finance.—The total receipts of the District of Columbia during the year ending June 30, 1902, were $3,735,542.42. Of this amount $3,594,569.55 were revenues collected by the District, and $140,972.87 were moneys credited to the District of Columbia by the United States as its share of unexpended appropriatons made by Congress. This repayment resulted from the curious fiscal scheme of the District of Columbia by which, in general, one-half of the appropriations made to take effect in the District are payable by the United States government. Of the total actual revenues of the District during the year, $2,795,996.13 was derived from the tax on realty, $62,522.16 from penalties on realty, $63,097.58 from the tax on personalty, $104,512.23 from the tax on railroads, $240,107.80 from liquor licenses, $147,644.52 from miscellaneous collections, and $85,918.72 from miscellaneous licenses. In 1902, as in 1901, the District revenues were inadequate to its expenditures, the deficit being $2,491,574.05, if reckoning all appropriations for the year as obligations, or an actual shortage of $1,795,242.46 if considering only those appropriations on account of which advances had been made up to June 30, 1902, by the United States treasurer. The total bonded indebtedness of the District on June 30, 1902, was $14,196,550.

Education.—The public schools of Washington, D. C., have long been celebrated for their excellent system and service. Particular stress is laid upon manual training. In 1902 there were 47,431 pupils enrolled in the schools, and 1283 teachers. There were 133 buildings, and the value of all public property used for school purposes was $4,352,531. The amount received for school purposes was $1,525,711, and the amount expended was $1,485,695.

The commission of architects and landscape gardeners, appointed in 1901 to make plans for the beautifying of the city of Washington, completed their plans during 1902, and caused to be made models of the city as it is and as it will be, and placed them on exhibition at the Corcoran Art Gallery, Washington. The plans for improvement are most comprehensive, and when carried out will make Washington the most beautiful capital city in the world. The experts having the architectural project in hand are Daniel H. Burnham, of Chicago; Frederick Law Olmsted, Jr., of Brookline, Mass.; Charles F. McKim and Augustus Saint Gaudens, both of New York.

The inadequacy of the White House as an official residence for the chief executive of the nation has long been recognized, and plans have been made at different times to remodel or to tear down the old structure and substitute for it a more elegant and commodious mansion. It is generally agreed that the old White House is unfit either for the official or the private residence of the President, but the people are loath to demolish it. During the summer of 1902, elaborate repairs were made on the White House, and a new structure was built to serve as the executive offices. While the repairs were in progress the official residence was removed to a private house in Washington. While these changes improved matters somewhat, it will be necessary to build a new executive mansion before long in order to carry out the plan for the reconstruction of Washington, and to provide a suitable residence for the President.

Government.—The present form of government for the District of Columbia was instituted in 1878, when Congress invested the administration of the District in a board of three commissioners, appointed by the President of the United States,

two of whom must be citizens of the District having a three years' residence therein, and the third must be an officer from the engineer corps of the United States army, with a rank not below captain. The citizens of the District of Columbia have no vote; for all subordinate municipal officers are appointed by the commissioners. The present commissioners are H. B. F. Macfarland (Rep.), president, whose term will expire May 2, 1903; John W. Ross (Dem.), whose term will expire May 5, 1903; and Major John Biddle (non-partisan), U. S. A., detailed during the pleasure of the President of the United States.

Supreme Court in 1902 and 1903: Chief Justice, Edward A. Bingham; associate justices, Alexander B. Hagner, Andrew C. Bradley (died May 15, 1902, and Ashley M. Gould appointed in his place), Harry M. Clabaugh, Job Barnard, and Thomas H. Anderson.

DOMINICA. See LEEWARD ISLANDS.

DOMINICAN REPUBLIC. See SANTO DOMINGO.

DONKIN, BRYAN, an English engineer, died March 4, 1902, at Brussells. He was born in 1835, and was educated at University College, London, and the Ecole Centrale des Arts et Metiers in Paris. After some years spent as an apprentice, he engaged in the construction of heavy machinery, often going to the continent and the colonies to supervise its erection. In addition to his interest in practical engineering, he carried on investigations and research dealing with heat engines from a scientific point of view. He was the author of *Gas, Oil and Air Engines,* a standard work which has passed through three editions; *Heat Efficiency of Steam Boilers;* and of numerous contributions to the engineering press and the journals of the Institutes of Civil and Mechanical Engineers. He was the recipient of the Telford gold medal from the Institute of Civil Engineers, and served as a juror at the Paris Exposition of 1900. He was a vice-president of the British Institution of Mechanical Engineers and a member of many European and American engineering and scientific organizations.

DOUGLAS, GEORGE, the pseudonym of George Douglas Brown (*q.v.*).

DOUKHOBORS, the "spirit-wrestlers," are a Russian sect whose members in Canada attracted widespread attention in 1902 owing to one of the most remarkable religious pilgrimages of modern times. Founded in south-central Russia, about the middle of the eighteenth century, the sect suffered severely at the hands of the government, but finally gained permission to emigrate from Transcaucasia, whither they had been banished years before. A colony went to Cyprus in 1898, and in 1899 a large party arrived in Canada, where they were settled in the Northwest Territories by the Dominion government, which granted them lands and the customary assistance to new settlers. There are seventy-three communities, including some 7000 or 8000 persons, in Saskatchewan and Assiniboia. The Doukhobors, sometimes called Russian Quakers, lead a life of puritan simplicity and are noted for their thrifty and cleanly habits, and for their moral and physical development. They are successful farmers, and as laborers are in demand. A high percentage of illiteracy, however, prevails among them, only 4 or 5 per cent. being able to read or write. The settlements are conducted on the communal system of the Russian *mir.*

In several of the forty villages of the Yorkton district of East Assiniboia originated the so-called fanaticism of the Doukhobors, which affected only a fourth or at most a third of the people of this section, and which was thoroughly disapproved by the Doukhobors of Saskatchewan. The Doukhobors are in serious need of competent leaders. Their chief men were exiled to Siberia some years ago, before emigration, and the women, who are said to be more intelligent than the men, may not serve in authority. A number of the Doukhobors, who generally are vegetarians, were induced by one or two irresponsible preachers to believe that they were called of God to renounce the use of animal products as both food and clothing, as well as the labor of beasts, and to start on a pilgrimage to find Jesus, whose second advent was announced. They set free their horses and cattle, which were herded and sold at auction by the government agent, the proceeds being set aside for the benefit of the former owners, who, however, were not made destitute by their action. The communities possess well filled granaries and storehouses, and in several of the villages from which the cattle were driven, flouring mills are being built. The Doukhobors never have received government aid beyond the original small loans that were faithfully repaid with interest, for the people bear a reputation for honesty and integrity. Late in October, 1902, leaving behind their material wealth, ill-clad to endure the oncoming winter and many without any protection whatever for the feet, these religious fanatics, 2000 strong, set out on their singular march. At Yorkton the women and children were detained; some 500 men continued toward Winnipeg in the province of Manitoba, but were intercepted on November 9 at Minnedosa and, sullenly struggling for release, yet virtually observing their doctrine

of non-resistance, were placed on trains to be returned to their homes. This outbreak of "religious hysteria," noteworthy particularly for its mysticism, is paralleled only in the pilgrimages of the Middle Ages.

DRAMA. By a familiar anomaly the most noteworthy events on the American stage during 1902 were the appearances of European actors and the performance of plays written by European dramatists. Without exception, the work of American playwrights in that year was mediocre and ephemeral; and, with few exceptions, the achievements of American players were equally insignificant. On the other hand, from England came Mrs. Patrick Campbell, for the first time; Martin Harvey, for the first time as a star; Charles Hawtrey, to repeat through the country his success of 1901 in New York, and E. S. Willard, in a more or less familiar repertory; while from the continent Eleonora Duse returned after six years, and Ferdinand Bonn, Adolf Sonnenthal, and Hélène Odilon from the German theatres, acted to the German-American public of New York and various western cities. Of noteworthy English plays Mr. Pinero's *Iris* and Mr. Esmond's *Imprudence* were performed for the first time in the United States. Of the French plays, Julia Marlowe acted for a few weeks in a few cities *Queen Fiametta*, a romantic and poetic tragedy of the Renaissance in Italy, by Catulle Mendès while a bowdlerized version of a farce, *The Two Schools*, by Alfred Capus, made known to us for the first time a conspicuous and promising Parisian playwright of the younger generation. From Germany came English versions of Fulda's romantic comedy in verse, *The Twin Sisters*, acted for a few weeks in New York by the company of the Empire Theatre; of Meyer Foerster's pictorial and sentimental comedy, *Old Heidelberg;* of Sudermann's play of contemporary life; *The Joy of Living;* and Heyse's scriptural drama, *Mary of Magdala*. From Italy Duse brought Gabriele d'Annunzio's three tragedies, *La Gioconda, La Citta Morta* (*The Dead City*), and *Francesca da Rimini*. From Spain, Mrs. Campbell took a much abridged version of Echegaray's *Mariana*, and from Belgium Maeterlinck's *Pélléas and Mélisande*. To her likewise we owe the performance of the Scandinavian Björnson's *Beyond Human Power*.

In the autumn of 1902 Eleonora Duse returned to the United States for the first time since 1896, giving fifty performances in a few cities of the East, that were significant for the change in her repertory and acting. Hitherto Duse had appeared in America chiefly in the plays of Sardou, the younger Dumas, Sudermann, and Goldoni. In Europe, until 1900, her repertory was virtually the same. Then she began to add to it the Italian tragedies of d'Annunzio, and in the United States she practically confined herself to these. She esteemed them dramas of poetic beauty of form, high and warm imagination, keen and truthful insight into certain phases of life and character, and poignant dramatic effect. She accounted them far fitter vehicles for her art than the plays of Sardou and Dumas. She regarded d'Annunzio as a great poet and great dramatist, a glory of modern Italy, and she chose to act his plays in something of the spirit with which the earlier partisans of Wagner pursued their propaganda in behalf of his music-dramas. In the main, however, they were received here with indifference or positive dislike. Heard in a little known language, the formal beauty of d'Annunzio's poetic prose and verse, their warmth of imagination and ardor of feeling, their felicity of phrase and picture, whether of place, or mood, or character, the poetic glamor that pervaded them made little impression upon American audiences. They heard in them only a flux of strange words, long pictorial speeches of a kind alien to the English-speaking stage, and infinite hair-splittings. They resented d'Annunzio's preoccupation with the aspects, details, and imaginings of sensuous feelings and sensual passion. They were indifferent to the truth and insight of his depiction of inherently morbid temperaments in morbid situations, however vividly imagined. They resented his effort in *The Dead City* to revive incest as a motive of tragedy, and they disliked the placing of *Francesca da Rimini* in the rude, bloody, and ferocious Italy of the mediæval despots rather than in a quasi-legendary nowhere. In fine, they found in the three tragedies an excess of the Latin qualities that are most distasteful to the northern races, and a lively discussion ensued in the newspapers and elsewhere, in which "morbidity," "eroticism" and "degeneracy" played large part. In the main, too, American audiences cared little for the new aspects of Duse's acting that these tragedies revealed.

Of the three, *Gioconda*, a drama of contemporary life, cast in poetic prose, portrays the struggle of a wife of pure and lofty beauty of mind and spirit to repossess the soul of her husband, a sculptor, with all the infirmities and perversities of the artistic temperament, torn between passion for another woman who incarnates the highest achievements and aspirations of his art and intermittent realization of the finer and exalted appeal of the wife's nature. It contains passages of acute, if perverted, insight into the temperaments thus put in play; a scene of notable power in which the two women face each other and lay bare their aspirations in the sculp-

tor's studio; and another that perversely mingles lyric beauty, piercing pathos, and morbid dwelling upon physical mutilation.

The second, *The Dead City,* likewise cast in poetic prose, seeks to unite ancient and modern motives of tragedy and ancient and modern environment. An archæologist and his sister, a poet and his blind wife are shut in a house near the excavations at Mycenæ. The archæologist seeks the bodies of the Atridæ in their tombs, the poet to write of their fate. The fetid atmosphere of the tombs and the legend permeates the atmosphere of the tragedy. The archæologist conceives an incestuous passion for his sister, with which he struggles piteously. The poet pursues her likewise, but gives his desires rein. The girl is gentle, simple, pure, and tortured. Around the three hovers the blind woman, at first dimly suspecting, finally fully realizing, morbidly conscious of her blindness, full of a gentle and high, if perverted, altruism that persuades her that she must sacrifice herself for her husband and the girl, overflowing with compassion, weighted with a growing sense of impending catastrophe. The mingling of ancient and modern motives in the tragedy is not altogether felicitous or artistically defensible. A repulsive atmosphere clothes the play. The poet is a mere replica of the sensually preoccupied heroes of d'Annunzio's novels. On the other hand, the blind woman is imagined with singular beauty and poetic feeling, and the sense of hovering doom hangs over one or two scenes with pervading intensity. A long passage of remarkable vividness describes the finding of the bodies of the Atridæ; and the final scene in which the two men sit over the body of the drowned girl and the blind woman stumbles upon them, is surcharged with tragic power.

The third of the plays, *Francesca da Rimini,* sets forth anew the fates of Francesca, Paolo, and Lanciotto, adds a third Malatesta, an evil youth, whose vindictiveness brings about the final tragedy, and seeks to wrap the action in the atmosphere of the Italy of the Guelfs and the Ghibellines. The piece is relatively free from the traits that English-speaking people find objectionable in d'Annunzio, and, in comparison with the other two plays it is full of action. It abounds in passages of poetic beauty and dramatic poignancy; its passion sounds vital and true; its personages live as human beings, not perverted imaginings; and its pictures of the Italy of the despots are varied and vivid.

In *Gioconda* Duse played the wife; in *The Dead City,* the blind woman; in *Francesca,* the heroine. To all three she brought the subtle and penetrating analytic power which has enabled her to search the mind and heart of every personage that she has mirrored, and to conceive the play of them in each situation the dramatist has contrived. To all three she brought the corresponding synthetic power that has enabled her to fuse and reveal the results of that analysis in an impersonation that carries the illusion of life itself. Now, however, in the new parts this synthesis has become simpler and weightier. She has eliminated details and passed over subtleties that she may dwell with the more emphasis upon the essentials of the personages that she is revealing and may impart a deeper force to the crucial moments of the action. In all three parts she sought, besides a poetic beauty of outline and color, a measure and reserve, an elevation, remoteness, spiritual significance, and purity of feeling new in her acting.

Appearing in America for the first time, in Chicago, on December 30, 1901, Mrs. Patrick Campbell acted throughout the country during 1902. After a long apprenticeship in melodrama in the British provinces, her success as Mrs. Tanqueray and Mrs. Ebbsmith in Pinero's dramas, her association with Forbes-Robertson in Shakespeare's and other plays and her rising reputation in the portrayal of neurotic heroines of the ultra-modern sort had prepared the way for her coming and awakened the interest that attended her tour. In America she acted the parts of Paula Tanqueray and Agnes Ebbsmith, Magda in Sudermann's *Heimat* and Beata in his *Joy of Living,* Mélisande in Maeterlinck's *Pélléas and Mélisande,* Clara Sang in Björnson's *Beyond Human Power,* Mariana in Echegaray's Spanish play, and Jeannie in *Aunt Jeannie,* a trivial comedy of contemporary London manners in the light French conversational fashion by the novelist E. F. Benson.

The distinctive qualities of her acting have been her psychological insight into the moods and traits and the springs of character and action in general of the neurotic heroines of a few ultra-modern dramatists and her capacity for vivid and telling suggestion in the imparting of them. This insight she manifested most fully in her Agnes Ebbsmith, in penetrating and luminous understanding of the content of the part, subtle shadings of interpretation, felicities of detail and contrast and an adroit proportioning of climax and of the whole impression. The same insight was notable in her Magda and in her Beata, which also revealed her command of irony and of a brilliant restlessness which sorted well with these two heroines and which passed into genuine gayety and unaffected lightness of mood in Aunt Jeannie. Her Magda showed also a temperamental skill in the denotement of vague yet deep yearning for affection and sympathy that had its fullest manifesta-

LEADING ACTRESSES—(Left) Mrs. Fiske (*Photo by Sarony.*) (Right) Signora Eleanora Duse (*Photo by Dupont.*)

tion in her wistful, fragile, remote, and artificially simple Mélisande. Such power as she has was most impressive in her poignant conveyance of the fruitless struggles, wan weariness, and despairing misery that settles over Paula Tanqueray in the last two acts of Pinero's drama. Her adroitness and force of suggestion, while conspicuous in all her parts, ranged most widely, subtly and vividly in her Clara Sang, where outstretched in bed through a long act she suggested by felicitous significance of tone, gesture and play of feature, the passing moods and deeper feelings of the sick woman. For acting that depends on subtlety, poignant detail, flexibility, and repressed intensity of feeling, Mrs. Campbell's technical resources proved ample; while her unique insight into certain types of women has commanded intellectual respect.

Two of Mrs. Campbell's plays, acted for the first time in America, proved noteworthy in themselves, Björnson's *Beyond Human Power* and Sudermann's *Joy of Living*. The former set forth with a kind of bleak dispassionateness, with simplicity, sincerity, and truth, with an absence of theatric device and effect that made its dramatic potency the higher, the faith of a Christ-like pastor of a little Norwegian village in his power to heal by prayer his bedridden wife; the seeming working of the miracle; the wonder of the villagers; the awe of the doubters; the questionings of obtuse pastors; the appearance of the wife walking as one transfigured, only to die in her husband's arms. In Sudermann's play the heroine has carried her right to live according to the fulfillment of her own nature and happiness to the extent of infidelity that long since has become a close and soothing friendship with the whilom lover. Belated discovery comes when his zest for life is keenest, his opportunity fullest. The husband insists that he sacrifice himself to the German code of honor. The wife by poison gives her life instead, half in devotion, half in retributory expiation. The action passes in the aristocratic society of Berlin in our day, and Sudermann overlays the protagonists with political types and political intrigues. The psychology hovers between the right to untrammeled freedom according to Nietzsche, the impulse to retribution and expiation, and obligation to accepted social standards. The characterization is significant, the construction adroit and theatrically effective.

From Germany, likewise, came Paul Heyse's *Mary of Magdala*, which Mrs. Fiske first acted in November, 1902. Without bringing Christ upon the stage and with diligent effort at reverential treatment throughout, the play is saturated with His presence, His teachings, and the events of His life. Touched by them Mary Magdalen is transformed from the proud and restless courtesan into the devout disciple. Judas appears as the discarded lover of Mary conspiring under temptation and in sinister vindictiveness against the Savior. A young Roman patrician would spare His life for Mary's love. The end is the darkness and storm of the crucifixion and the promise of salvation that it carries. With all its affectation of spiritual elevation, Heyse's play follows the lines of the romantic drama of the middle of the last century. So far, however, as it has been tested in America, the public has accepted the piece as without offense to religious feeling. The vivid illusion of its pictures of Jewish life, and the notable acting of Mrs. Fiske as Mary, and of Tyrone Power as Judas have heightened the impression and note of the play.

Of English plays, Mr. Pinero's *Iris* and Mr. Esmond's *Imprudence* were acted in 1902 for the first time in America—the one by Virginia Harned in September, the other by a company of which William Faversham and Fay Davis were the chief members. *Iris* pictures the gradual decay of a weak, sensuous, shallow woman who cannot forswear luxury and seeks it, heedless of the price she must pay, until the youngster that has loved her leaves her to her fate in disgust and the rich Jew that has protected her, now weary and distrustful, casts her into the street. Pinero has made the play with masterly stagecraft, truth of characterization, and bald and sordid realism. It serves, however, no genuinely artistic ends, and the American public, like the English, has held aloof from it. *Imprudence*, on the other hand, is a light and charming comedy, full of wit and shrewd observation, skilfully made, and catching the modern note of sanity and cheerfulness that has been more cultivated by the younger generation of French than of English dramatists. The other work of English playwrights revealed in America in 1902 was ephemeral or insignificant. It comprised Haddon Chambers's *Modern Magdalen*, a theatrical drama sufficiently indicated by its title, which employed the considerable talents of Amelia Bingham's company; adaptations by Sydney Grundy and Edward Rose of Scribe's *Les Doigts de Fée;* a version by Captain Marshall of Scribe's *Bataille des Dames;* a mechanical and unplausible drama of modern life, *The Mummy and the Hummingbird*, which served John Drew as a vehicle for his familiar talents; the melodrama that Hall Caine drew from his novel, *The Eternal City*, and that Viola Allen acted; and Arthur Lewis's farce, *A Country Mouse*, in which Ethel Barrymore played; and one or two other ephemera. Two English plays, *The Only Way*, and *A Cigarette Maker's Romance*, were the chief vehicles in which Martin Harvey

displayed his peculiar skill and subdued technique in the suggestion of wistful and visionary natures in undeserved distress or sudden elevation.

Of French plays, the much modified version of Alfred Capus's *Les Deux Ecoles* (*The Two Schools*) has already been mentioned. In Paris this play and his *La Veine* established him as the gayest, wittiest, and most adroit writer of French farce of boulevard manners, esoteric Parisian detail, and marital infelicity since Henri Meilhac. In the autumn of 1902 he further fulfilled his promise and established his claim to consideration as a writer of semi-philosophic comedy of manners by *La Châtelaine*, in which he strikes more clearly and seriously his characteristic note of unexaggerated truth to ultra-modern life with its reserves and implications, and of sanity and cheerfulness. Catulle Mendès's *Queen Fiametta*, in the English and bowdlerized version made for Julia Marlowe, lost much of its poetic glamor as a picture of the Italian Renaissance. What was left was a play of clerical intrigue and relentless vindictiveness, of illicit passions and youthful folly. Stripped of much of its emotional appeal it missed fire in America. Two attempts were made in 1902 to transplant fragments of the repertory of the Théâtre Antoine to the American stage. One of the little plays so transferred, *At the Telephone*, failed largely because it did not reproduce the grewsome atmosphere that filled it in Paris as an absent husband listened at the telephone to the struggles and death of his wife at the hands of thieves. The other, *Carrots*, which unfolded with imagination and force the heart and mind of an ill-treated boy, fared better with Ethel Barrymore in the chief part.

The work of American playwrights during 1902 was scanty, with one exception, unworthy of serious consideration. The prolific Mr. Fitch produced three comediettas, *The Stubbornness of Geraldine* for Mary Mannering, *The Bird in the Cage*, a remote adaptation from the German, and *The Girl with the Green Eyes* for Clara Bloodgood. All three confirmed his haste, laxity, superficiality, and general indifference to serious achievement. On the other hand the first and third proved anew his dexterous and humorous observation of the outward aspects of acutely contemporary life among prosperous Americans; but in this, as in other respects, there appeared no improvement upon his previous work. Augustus Thomas was unproductive in 1902, except for some share with Richard Harding Davis in a "dramatization" of the latter's *Soldiers of Fortune*, which Robert Edeson acted. The piece and the acting had a flavor of Gibsonic youth and of American humor and notions that carried them to favor; but as a play it was 'prentice work along the lines of conventional melodrama in the new setting of a South American capital. A few plays by minor American playwrights were so indifferent and attracted so little public notice that they scarcely make a part of the record. The vogue of "dramatizations" from popular novels declined, and the few that were made, like that of Miss Mary Johnston's *Audrey* for Eleanor Robson, of Mr. Cable's *Cavalier* for Julia Marlowe, and of Mr. Winston Churchill's *Crisis* for James K. Hackett were of no dramatic consequence.

The exception to all this was a melodrama of the higher sort, *The Darling of the Gods*, by David Belasco and John Luther Long, first acted in November, 1902, and the most noteworthy American play of the year, if not for itself, for the climax it has set to the pictorially opulent mounting of plays by American managers. The action passes in Japan, and scenery, costumes, appointments, the play of light, and the incidental illustration of manners have not yet gone farther with us in richness, variety, solidity, imagination, and the creation, so far as they may, of atmosphere and illusion that are artistically satisfying, even cloying. The play itself, in which Blanche Bates had the chief part, is the drama of the struggle of a remnant of the Samurai against the new order in Japan, personified in a war minister, and the ill-fated love of their chief. It harks back to the Sardou model, especially to his *La Tosca*, but in dramatic substance and theatric effectiveness it ranks far above the other American plays of the year.

American actors during 1902 were content, with three exceptions, to pursue routine. They have revealed no new side of their talents, and the disposition seems to increase among them to stick closely to the sort of part in which each has pleased his audiences. No new actor or actress of promise has risen, and the lack of training in the younger generation grows more evident. Three players, however, ventured Shakespearean revivals, and each was rewarded with much public favor. In the spring Henrietta Crosman, appearing as Rosalind in *As You Like It*, unaided by sumptuous scenery, won praise for pretty if not very imaginative or poetic acting of her part, and so pleased the public that in New York alone the comedy was acted sixty times. In the autumn Richard Mansfield revived *Julius Cæsar*, taking himself the part of Brutus, gathering a competent company and mounting the tragedy with illusive opulence and solidity. Mr. Mansfield's own personation shows no notable insight into Shakespeare's Brutus. It follows the obvious outlines, colors them with his mannerisms, and even gives them a slight ultra-modern and

RICHARD MANSFIELD, as Brutus

neurotic tinge. It had, however, flashes of power and moments of repose and elevation. E. H. Sothern, in turn, repeated his personation of Hamlet, first revealed some years before, and, though it was still deficient on the metaphysical and poetic side, he heightened the qualities that first commended it. Like Mr. Mansfield, he sought a competent performance of the whole play as a play, and in both cases the public flocked to see it.

In the summer of 1902 the Elizabethan Stage Society presented in London the sixteenth century morality, *Everyman*, with some approximation to the original conditions of representation. The piece and the performance made such impression in London that in the autumn the players came to America, acting it usually in ordinary theatres. At first received coldly, it gradually attracted many that seldom visit the theatre and regard plays and acting with distaste.

In London, the theatrical year was chiefly notable for Mr. Tree's mounting of Stephen Phillips's poetic tragedy, *Ulysses*, said to bear closer relation to the spectacular requirements of the contemporary stage than to the Homeric legend, and for the representation of J. M. Barrie's *The Admiral Crichton*, accounted by many the most charming and imaginative English high comedy in a generation. The rest was largely routine. In Paris, aside from the plays of Capus already noted, like conditions prevailed among playwrights and actors, with signs of an increasing tendency in audiences to welcome plays that do not deal with marital infidelity or advocate social theses. On the German stage, Meyer-Foerster's *Alt Heidelberg*, a pictorial and sentimental comedy of German student life, neatly written and depending much on picturesque mounting and racial understanding and sympathy, had an unusual vogue. Hauptmann had another play in his later manner, half symbolic, half realistic, acted in Vienna; and Maeterlinck, forsaking his eeriness and symbolism, wrote a short but moving tragedy of mediæval Italy, *Monna Vanna*.

DRUMMOND, George, fourteenth Earl of Perth and sixth of Melfort, the eldest peer in England, died at Kew, England, February 28, 1902. He was born in London, May 6, 1807, was educated in France and Scotland, and in 1824 joined the Ninety-third Sutherland Highlanders, in which he soon became captain. At one time he was prevented by attainders from holding the Scottish earldoms of Perth and Melfort, but by a parliamentary act recommended by Queen Victoria, they were restored to him in 1853.

DRYDEN, John Fairfield, was elected United States senator from New Jersey to succeed the late William J. Sewell on January 29, 1902. He was born near Farmington, Me., August 7, 1839, and in boyhood removed with his parents in 1846 to Massachusetts. He prepared for college at Worcester in that State, and entered Yale with the intention of preparing himself for the law. Ill-health interrupted his college course, but he subsequently returned and took his A.B. in 1865. His health, however, did not allow him to carry out his plan of study, but during some years spent in rest and travel he made a special study of life insurance. He planned and, in 1875 organized, at Newark, N. J., the Prudential Insurance Company of America, becoming its first secretary, and in 1881 succeeding to the presidency, a position which he has ever since held. In this capacity he has come to be recognized as one of the greatest authorities on life insurance in the world. He also became one of the founders of the Fidelity Trust Company at Newark, and is largely interested in other financial and industrial corporations and railways. Although always a stanch Republican, until his election to the United States Senate his political activity had been limited to his service in 1896 and 1900 as an elector-at-large on the presidential ticket in New Jersey.

DU BARAIL, François Charles, French general, died in Paris, January 31, 1902. He was born in Versailles, May 28, 1820, entered the cavalry in 1839, and after successive promotions became a brigadier-general in 1863. He participated in the Franco-German war, and after service as commander of the Third Corps of the Army of Versailles was, in May, 1873, called to be minister of war in Marshal MacMahon's first cabinet. A year later he resigned, was given the command of the Ninth Army Corps at Tours, which he held until his retirement in 1887, and acted as president of a commission on cavalry tactics. In 1843 he was made a chevalier of the Legion of Honor, and in 1871 became a grand officer.

DUFFERIN and AVA, first Marquis of, Frederick Temple Hamilton-Temple-Blackwood, British diplomat and statesman, died at Clandeboye, Ireland, February 12, 1902. Lord Dufferin's career as a diplomatist was one of the most notable in British history during the last century. Born at Florence, Italy, June 21, 1826, he was educated at Eton and at Christ Church, Oxford, and was appointed a lord-in-waiting to Queen Victoria during part of Lord John Russell's first administration, holding the same honor also in 1854-58. His diplomatic career began with his appointment as attaché of Lord John Russell's special mission to Vienna in 1855,

and he was afterwards almost constantly in the public service up to within a few years of his death. As a peer—he became fifth Baron of Dufferin in 1841, while yet a minor—he was precluded from the active political life of a popular representative, but he held several responsible parliamentary offices. As under-secretary of state for India in 1864-66, under-secretary for war (1866), chancellor of the Duchy of Lancaster and paymaster-general of the forces (1868), he had a varied experience as a member of different Liberal administrations; but interest centres chiefly in his diplomatic and vice-regal positions. In 1860 he was sent to Syria by Lord Palmerston as a special commissioner to investigate the massacre of Christians in that country. With his appointment as governor-general of Canada in 1872, he began a career which embraced the majority of the important offices, outside the cabinet, within the gift of the British crown. Shortly after the expiration of his term as governor-general of Canada (1878), he was sent as ambassador to Russia; from 1881 to 1884 he was ambassador to Turkey, and during that tenure was sent (1882) as special commissioner to Egypt to restore order after the rebellion of Arabi Pasha. In 1884 he became governor-general of India; in 1888, ambassador to Italy; in 1891, ambassador to France, retiring from that post and from active official life in 1896. His service in some of these positions was of exceptional value to the empire. While at Constantinople and at Cairo he was at the centre of complex intrigues by which British interests were seriously threatened; but his astuteness and finesse were sufficient to cope with all the diplomatic resources employed against him. In Canada and in India his popularity and almost ideal qualifications as a viceroy did much to rivet the attachment of widely different populations to the British crown, and during his various ambassadorships he combined a resolute watchfulness of his country's interests with a social tact which made him unusually acceptable. Lord Dufferin in 1888 was made a marquis in recognition of his distinguished services. He was the recipient of academic honors from McGill, Dublin, Harvard, Edinburgh, Oxford, St. Andrew's, and Cambridge universities, as well as the honorary membership of various learned societies. He was an eloquent speaker and graceful writer. The following are among his published works: *Letters from High Latitudes* (1856), *Irish Emigration and the Tenure of Land in Ireland* (1867), *Speeches and Addresses* (1882), *Speeches in India* (1890).

DUNKARDS, Tunkers, or German Baptist Brethren, the last being the incorporated name of the church, though its adherents are becoming known simply as Brethren, a name that probably will be adopted at the next general conference. A sect of plain dress and speech, which came to the United States in the early eighteenth century, having originated in Germany, the German Baptist Brethren believe in a literal obedience to all the commands of the New Testament as essential to salvation. The Dunkards comprise the branches known as Conservative (by far the most numerous), Old Order, Progressive, and Seventh Day (German), the denomination having more than 115,000 members, 3150 ministers, and 1100 churches. It is strongest in the States of Pennsylvania, Indiana, and Maryland. The Brethren Church (Conservative) in this country now includes 2750 ministers and 100,000 communicants, and possesses church property valued at two and one-half million dollars. It maintains an extensive publishing establishment at Elgin, Ill., the periodical issues of which have an aggregate circulation of over 100,000. Under the auspices of the church are seven colleges, with a student enrollment of about 2000. There are foreign missions in Denmark, Sweden, France, Switzerland, India, and Canada, which are conducted through the general mission board, having an endowment of $500,000. The home missionary work of the denomination is being extended. Missionary work in general is undergoing improvement, and during 1902 additional missionaries were commissioned and the receipts for the work showed an increase over previous years. The annual meeting of the church in 1902, held at Harrisburg, Pa., was largely attended; in 1903 the general conference will convene in Bellefontaine, O., beginning June 2.

DURAND, Alice Marie Céleste, a French author, who wrote under the name of "Henri Gréville," died May 26, 1902, in Paris, where she was born October 12, 1842. She was the daughter of a journalist, Jean Fleury, whom she accompanied to Russia in 1856 when he became professor of French literature in the University of St. Petersburg. She married M. Emile Durand, a French professor, and in 1872 returned to France. She had already published stories in the St. Petersburg papers, and now wrote Russian tales for the leading French periodicals, which gained for her great popularity both in France and Russia. Although her stories are of rather a sensational type, she contributed to that interest in Russian civilization which of late years has characterized the French. In 1886 she lectured in the United States on French and Russian literature. She was a very prolific writer, and most of her novels have run into many editions. *Dosia* (1876), and *Sonia*

(1877), which have been reprinted in America, are fairly representative of her work. Other works are: *Dournof* (1878), *Le Moulin Frappier* (1880), *Rose Rosier* (1882), *Clairfontaine* (1885), *Cléopâtre* (1886), *Le Comte Xavier* (1886), *La Fille de Dosia* (1887), *Nicanor* (1887), *Frankley* (1887), *Comédies de paravent* (1888), *La Seconde Mère* (1888), *L'Avenir d'Aline* (1889), *Chant de Noces* (1889), *La Passé* (1890), *Un Mystère* (1890), *Aurette* (1891), *Péril* (1891), *L'Héritière* (1891).

DUSE, ELEONORA. See DRAMA.

DUTCH EAST INDIES, the colonial possessions of the Netherlands lying between the Asiatic continent and Australia and comprising the islands of Java (with Madura, area 50,554 square miles, population (1900) 28,745,698), Sumatra (area 161,612 square miles, population (1897) 3,209,037), Celebes (area 71,470 square miles, population 1,997,860), part of Borneo (area 212,737 square miles, population 1,180,678), and of New Guinea (area 151,789, population 200,000), the Moluccas (area 43,864 square miles, population 399,208), Banca, the Timor archipelago, and a few smaller groups. These figures, of course, are estimates. The total area is 736,400 square miles, and the population approximately 38,000,000, of whom over two-thirds live in the islands of Java and Madura. In 1900 there were about 76,000 Europeans in the islands, and a growing Chinese population of upward of half a million. Batavia, the chief city of Java, has a population of 115,887. The religion is predominantly Mohammedan, the Christians numbering about 375,000. For administrative purposes the islands are divided into two parts, one comprising Java and Madura, where the Dutch control is complete, and the other, the remaining islands, known as the "outposts," in some of which Dutch authority is merely nominal. There is a governor-general for the whole colony, in whom is vested both executive and legislative power, subject to the approval of the home government. There is also a colonial council of five members with advisory and legislative powers. There are two sets of laws in force, one for Europeans based on the laws of the Netherlands, and the other for the natives, formulated with particular reference to their peculiar customs and institutions. The entire colony is divided into residencies, regencies, and districts administered either by Dutch officials or native chiefs. There is a colonial army, mostly native, of 36,000 men, and a navy of 24 vessels, part of which is colonial. The revenue and expenditures in guilders for 1901 amounted to 149,935,934 and 149,885,383, respectively, leaving a surplus of 50,551. The budget for 1902 estimated the revenue at 151,971,414 and the expenditure at 158,149,412 guilders. The guilder is worth 40.2 cents. The revenue is derived chiefly from taxes, monopolies (opium and salt), and the sale of the products of government lands and mines. The principal products are sugar (1,608,718,400 pounds in 1899), coffee (118,044,399 pounds in 1899), cinchona, tobacco, tea, indigo, tin (16,460 tons in the year 1899-1900), coal, salt, gums, bark, and spices. The imports in 1900 were valued at 195,924,000 guilders; and the exports 259,033,000 guilders. Four-fifths of the export trade is with the Netherlands. There are 2226 kilometres of railway in operation, 1914 kilometres being in Java and 312 kilometres in Sumatra. An additional length of 138 kilometres is under construction in Java. See SUMATRA.

DUTCH GUIANA, or SURINAM, a colony of the Netherlands on the northeastern coast of South America, has an estimated area of 40,060 square miles and a population, exclusive of negroes living in the forests, of about 70,000, of whom over 30,000 live at the capital, Paramaribo. The colony is administered by a governor, who with his subordinates, is appointed by the crown. There is an elected legislative body. Religious liberty prevails. For 1900 the revenue was 2,296,000 guilders, besides a subvention of 128,000 guilders granted by the Netherlands to balance the expenditure; for 1901 the revenue was 2,324,000 guilders, and the necessary subvention 381,000 guilders. (The guilder is worth 40.2 cents.) The chief products are sugar, cacao, bananas, coffee, corn, rum, and molasses. Gold mining, placer, and recently quartz, is carried on. The gold export in 1899 was valued at 1,195,151 guilders. In August, 1902, it was officially stated that troops had fired on rioters, who had murdered a plantation manager, killing 13 and injuring 40.

DUTCH REFORMED CHURCH. See REFORMED CHURCH IN AMERICA (DUTCH).

EARTHQUAKES. An unusual number of earthquake shocks was recorded during the year 1902, and in many instances the shocks were sufficiently violent to cause losses of life and property. The total number of fatalities reported from different parts of the world as due directly to these disturbances cannot be estimated accurately, but it amounted to several thousand. Owing to the terrible cataclysms that devastated the islands of Martinique and St. Vincent, the attention of the public was directed more than usually to the occurrence of volcanic and seismic phenomena.

The earthquakes in 1902 occurred for the most part in the East Indies, central Asia, Asia Minor, southern Europe, West Indies, Central America, and the islands of the South Pacific, these regions falling within a well-marked seismic zone that extends around the earth. The following is a summary of the most notable disturbances that were reported: January 18, Guatemala—Several light shocks doing little damage. April 18, Guatemala—Earthquake of great intensity, generally felt over Guatemala, southern Mexico, Honduras and San Salvador. Its effects were most severe in western Guatemala, where the earth tremors continued for thirty seconds. Fissures were opened in the ground, bridges and railroads were disturbed, and several cities, including Quezaltenango, San Marcos, Tejutla, Tuncanché and Solalà laid in ruins. The loss of life was reported at from 800 to 900. The passage of the earthquake waves was recorded by instruments on the Isle of Wight. The first signs of activity in Mont Pelée, Martinique, were noticed soon after this disturbance. June 14, Sicily—Strong tremors, doing no damage. July 1, Turkey—The city of Salonica was badly shaken, and several lives were lost. July 7, Turkey—An earthquake partially destroyed the town of Zelisova. July 9, Persia—Severe shock felt in the vicinity of Bander Abbas. July 12, Venezuela—Caracas and neighboring towns were badly damaged. Seismic disturbances were frequent in this region throughout the year. August 27, Philippine Islands—Earthquake of marked violence was felt throughout the island of Mindanao; 60 fatalities were reported. September 23, Jamaica—Tremors were noticed at several localities. December 16, Russian Turkistan—The city of Andijan, province of Ferghana, was visited by the severest earthquake disturbance of the year. According to information published in the general press, the shocks were repeated at frequent intervals for a period of several days, but with decreasing violence. The official report issued by the Russian government stated that the total number of lives lost was 4714. Some important contributions to the science of seismology were made during 1902. The University of Tokio and the meteorological department of the Japanese government for several years have been collecting data relative to the character, location, and frequency of earthquake shocks. From a tabulation of the records made at 26 different stations distributed over the empire, it has been found that they may be divided, according to the seasonal frequency, into two groups. In one group the maximum frequency of disturbance occurs during the winter season, and in the other group the maximum frequency falls in summer. Furthermore, when the geographical location of the observing stations is considered, the coincidence is noted, that those stations showing a maximum frequency in winter lie in a district where the larger number of earthquakes originate inland, while those showing a maximum frequency in summer are grouped in a district that is peculiarly liable to earthquakes having a suboceanic origin. An attempt to correlate these results with barometric disturbances brought out some interesting relations between the two factors, from which it may be inferred that an increase in barometric pressure has a marked effect upon land disturbances. A comparison of the daily variations of frequency with atmospheric pressure also leads to the deduction, apparently, that the variation is influenced by corresponding barometric changes. It may be noted in connection with this interesting investigation that Japan, more than any other nation, has encouraged and assisted the study of earthquake phenomena. The University of Tokio is endowed with a professorship in seismology, and more than 1000 recording stations are maintained by the meteorological department. By making use of the data obtained as to earthquake energy, it has been found possible to construct buildings capable of effectually resisting the severe shakings that occur so frequently in Japan.

At the meeting of the Royal Geographical Society of London, held November 11, 1902, Professor J. Milne read a paper containing the results of the most recent investigations of seismic phenomena. Professor Milne divides all earthquakes into two classes—those extending over continental areas or the entire world (macroseismic), and those disturbing limited areas of 200 miles radius or less (microseismic). Large earthquakes are propagated as waves in all directions through the earth and over the surface; they may be recorded with delicate instruments anywhere on the globe. It is believed that they are due to sudden accelerations in the process of rock folding accompanied by displacements of the strata. Such macroseismic disturbances generate two sets of waves of which the first, constituting the preliminary tremors, have periods of 0.1 to 5 seconds and travel during the first 1000 kilometres at a rate of 2 to 2.2 kilometres per second and much faster beyond this limit. The second class of waves, which are much larger in amplitude, have periods varying from 15 to 30 seconds; they reach a place 80° from their origin in about 50 minutes as compared with 15 minutes for the smaller waves. The passage of large waves is sometimes marked by magnetic disturbances at one station, while at another station no magnetic deviation is noticeable, an anomaly that may be due to the varying distances of the stations from the magnetic magma through which

the waves are propagated. There is a close connection between the location of origins of large earthquakes and pronounced irregularities of the earth's crust.

EAST AFRICA, a general term applied to British, German, and Portuguese East Africa (excepting British Somaliland). The area has been estimated at upwards of 1,100,000 square miles and the population at about 15,000,000. See the four articles following and UGANDA and ZANZIBAR.

EAST AFRICA, BRITISH, a territory extending from the Egyptian Soudan to German East Africa with an estimated area of over 420,000 square miles, comprises the East Africa Protectorate, Uganda Protectorate, and the island protectorate of Zanzibar (*qq.v.*).

EAST AFRICA, GERMAN, a protectorate of Germany on the Indian Ocean between British East Africa and Portuguese East Africa, has an estimated area of 384,000 square miles. The estimated population on June 30, 1901, was 6,172,251; of these 1243 were Europeans (955 Germans), 3420 Indians, and 2648 Arabs. The protectorate is administered by an imperial governor stationed at Dar-es-Salaam and his subordinates in the nine districts. There is a small military force consisting of about 200 Germans and 1700 natives. A decree was issued in November, 1901, providing for the mitigation and ultimate abolition of slavery. For the fiscal year 1903 the estimated revenue (including an imperial contribution of 6,415,200 marks) balanced at 9,601,496 marks. (The mark is worth 23.8 cents.) Various tropical products are raised. The leading exports include rubber, cereals, and coffee. The chief imports are textiles, rice, and other provisions, and iron and steel ware. In 1900 imports and exports were valued at 11,430,540 marks and 4,293,645 marks respectively; in 1901, 9,510,766 and 4,623,471 respectively. In 1902 the commercial prospects of the protectorate showed no signs of improvement. There are only 54 miles of railway in operation, but a considerable mileage is projected. There is little hope, however, of much railway construction in the immediate future, owing to the indifference of the Reichstag. In March, 1902, the Reichstag voted 300,000 marks for the construction of a telegraph from Mpwapwa to Tabora instead of 602,000 marks as proposed by the government. Parliamentary as well as popular criticism upon the imperial colonial policy continued in 1902. In some quarters the opinion was expressed that it is "more than doubtful whether Germany has yet learned the art of rightly administering tropical colonies." And even though the Germans should acquire this art and however valuable East Africa might become to them, some believed that Germany would find it profitable to give over the protectorate to Great Britain in exchange for privileges or territory elsewhere. It was pointed out that the successful termination of the Boer war had emphasized to Great Britain the fact that German East Africa stands in the way of complete British control from Cairo to the Cape. So unsatisfactory is the progress of the country that Dr. Otto Arendt, speaking in March, 1902, said the official report on the protectorate "appeared to have been drawn up by an opponent of colonization."

EAST AFRICA, PORTUGUESE, a colony of Portugal extending from German East Africa southward to Tongaland (British), has an estimated area of 301,000 square miles and an estimated population of 3,120,000. The colony is administered by a royal commissioner and in part by chartered companies. There is a small military force, about two-thirds native. For the fiscal year 1903 the estimated revenue and expenditure were 3,094,698 milreis and 3,127,736 milreis respectively. (The face value of the milreis is $1.08.) The principal imports are cotton goods, ironware, and alcoholic liquors; the leading exports include rubber, ores, wax, and ivory. Imports and exports in 1900 were valued at 11,036,999 milreis and 6,427,065 milreis respectively, while in addition there was a transit trade amounting to 6,263,867 milreis. The Delagoa Bay Railway is in operation to the Transvaal frontier, 57 miles, and thence extends 290 miles to Pretoria. The Beira line runs from that port for 222 miles to Umtali, on the Mashonaland frontier. For the completion of the Salisbury-Buluwayo Railway (October 6, 1902), connecting the Beira line with the Cape system, see CAPE-TO-CAIRO RAILWAY. At the beginning of 1902 there were 1850 miles of telegraph line.

Early in 1902 it was reported that promising gold reefs had been discovered in the province of Lourenço Marques, north of the Momati River and not far from the Transvaal border. A syndicate consisting chiefly of persons in Lourenço Marques was formed to prospect further and work the fields, which, it was reported, the Portuguese government intended to connect by rail with the Delagoa Bay line. Enterprise, however, on a large scale is hardly looked for in Portuguese East Africa. Economic and commercial conditions are retrograde. In the province of Mozambique especially there is noted a progressive decline in the foreign trade. In 1902 the British consul there stated that in order to recover its prosperity the province must gain three things: "capital, the repression of disorders on the mainland, and the thorough and liberal revision of the customs tariff, which at present

weighs heavily on struggling traders." These local conditions, the continued expense of the colony to Portugal, and the importance of the territory to Great Britain in affording easy communication with the Transvaal, as well as with Rhodesia, brought about in 1902 the persistent belief in some quarters that the cession of Portuguese East Africa to Great Britain would not long be deferred. In October rumors were current that a secret treaty existed between Great Britain and Germany relative to a prospective division of the colony; and when questioned in the British House of Commons, Lord Cranborne, the under-secretary for foreign affairs, said that if such a treaty existed he was precluded from giving its terms. The visit of King Carlos of Portugal to King Edward VII. in November, 1902, called forth the suspicion that negotiations were under way for the cession of the colony or at least the province of Lourenço Marques, and this suspicion was not wholly allayed by the statement of the Portuguese minister in London that no negotiations of this kind were pending.

It appears that slave raiding is not yet extinct. In March, 1902, it was reported that the crews of some Portuguese gunboats, landed on the coast of Mozambique, encountered an expedition of slave dealers from Muscat. Of the latter 162 were captured together with 12 dhows, and 50 were killed, while some 700 slaves found chained in the dhows were released.

EAST AFRICA PROTECTORATE, a British dependency bordering the Indian Ocean between the Juba and Umba rivers and extending inland to the Uganda Protectorate, has an estimated area of 280,000 square miles and an estimated population of 2,500,000. The protectorate is administered by a British commissioner, Sir C. N. E. Eliot since 1900, who is also British agent in Zanzibar. The capital is Mombasa (population about 30,000). Revenue and expenditure in the fiscal year 1901 amounted to £64,275 and £193,438 respectively. In the same year imports and exports were valued at £444,142 and £83,959 respectively; in 1902, £421,266 and £113,205 respectively. (The imports do not include railway material and supplies for the administration.) Of the imports in 1902 piece goods formed more than a quarter, and of the exports ivory formed more than one-half, and grain one-fifth. About one-third of the imports came from India, 27 per cent. from Great Britain, 11 per cent. from Germany, and 6 per cent. from the United States. There are severe strictures on the importation of arms, ammunition, and spirits.

Although the so-called Uganda Railway, which is entirely within the East Africa Protectorate, was put in operation from Mombasa to Port Florence, on Victoria Nyanza, 584 miles distant, in December, 1901, a large amount of work remained in 1902 in the construction of bridges and laying the permanent way. The original estimates for the cost of the road proved too small, and in 1902 new appropriations were made by Parliament, not without some adverse comment on the whole enterprise. It seems hardly probable that the line will soon be a financial success; at present it is important to Great Britain chiefly on account of her activity in Uganda. Formerly the journey by the old caravan route from Mombasa to Mengo, the capital of Uganda, occupied seventy days; on the opening of the line to Port Florence the running time was two and a half days, and thence Mengo, 148 miles distant, was reached by steamer in one day.

It is to be regretted that the British government, in pursuance of the promise of 1897, has made no progress toward the abolition of slavery in the coast districts. On April 25, 1895, the provincial court of Mombasa handed down a decision, according to which all slaves imported into the coast territories of the Sultan of Zanzibar (which are leased from him by the British government) since the decree of April 18, 1876, are illegally held and should be confiscated. According to the bishop of Uganda the slaves thus held in the coast territories comprise about nine-tenths of the whole number.

ECONOMIC ASSOCIATION, AMERICAN, organized in 1885; president, Edwin R. A. Seligman, Columbia University; secretary, Frank A. Felter, Cornell University. The annual meeting, with the American Historical Association, was held at Philadelphia, Pa., December 26-29, 1902. The large attendance testifies to the increasing interest manifested throughout the country in economic studies. The first session, according to custom, was a joint meeting of the two associations. It was held in the Drexel Institute and was taken up with the addresses delivered by the respective presidents of the associations. Captain A. T. Mahan spoke on *Subordination in Historical Treatment* and Professor Seligman gave *Economics and Social Progress*, a fitting sequel to his paper *The Materialistic Interpretation of History*, which he read at the 1901 joint meeting at Washington, D. C., and which he has since expanded and published in book form. The underlying thought of the address may be given in the speaker's own words: "Relativity, not absolutism; change, not permanence—is the watchword of all social, political, and ethical progress." Proceeding along his usual line of economic interpretation, Professor Seligman showed that New England democracy and American individualism were

not the result of ancestry, but of certain definite economic conditions. We are now passing from under those conditions and our national character is changing. "While the stubborn racial characteristics must, indeed, not be overlooked, the American of the future will bear but little resemblance to the American of the past. To forecast the coming social transformation in our country without bearing in mind the fundamental change in economic conditions were puerile indeed." There is no occasion for pessimism as to the future. Present day conditions are marked by the practical exhaustion of free land, the predominance of industrial capital, the prevalence of scientific method, and the prevalence of competition.

Saturday morning's session was devoted to the discussion of the State regulation of railways. Charles A. Prouty, of the Interstate Commerce Commission, ably presented the case for a more effective public control. He maintained that railway discriminations instead of decreasing will become extortionate when combination has eliminated all vestiges of competition. It is necessary to establish a commission with power to adjust rates, subject to review and enforcement by a special body created for the purpose. Mr. Walter D. Hines, vice-president of the Louisville and Nashville Railroad, attacked these views vigorously, saying that the Interstate Commerce Commission was neither an expert nor an impartial tribunal, calling attention to the decisions of the courts on rate adjustments made by the commission in proof of his assertion. Saturday afternoon Prof. J. B. Clark, of Columbia University, presented a paper on *The Dynamics of the Wages Question.* The rate of wages tends to conform to the productive power of labor—as the productivity of labor is increased, wages increase, though they may lag behind, so that at no one time do laborers receive what they produce. All influences that tend to raise the standard toward which wages are tending are beneficial to labor. Anything that tends to thrust down the pay of labor or to retard its natural rise is injurious. The latter part of the paper was devoted to an analysis of the effect of monopoly upon the margin between the rising standard rate of wages fixed by the productivity of labor and the actual wages received by labor. Professor Macfarlane read a paper on *Distribution by a Law of Rent,* in which he keenly criticised Professor Clark's position that wages and interest can be reduced to the same differential form as rent.

The morning and afternoon sessions on Monday were given up to the consideration of the problems of organized labor. Mr. Henry White, of the United Garment Workers, presented a paper on *The Union Shop,* which was a calm, forcible argument for the labor union. Mr. Frank K. Foster, of the Massachusetts Federation of Labor, also spoke on trade unionism. The final session on Monday evening was devoted to a discussion of the *Currency Problem in the Orient.* Professor Jeremiah W. Jenks presented the principal paper, which argued for the retention of the present silver standard in the Philippines. Mr. Charles A. Conant and Mr. Horace White took sides against this view. New Orleans was chosen as the meeting place for 1903.

ECUADOR, a South American republic on the Pacific coast, lies between Colombia and Peru. The capital is Quito.

Area, Population, etc.—The estimated area is about 120,000 square miles. There are unsettled boundary disputes with Colombia and Peru. The population is estimated at about 1,400,000, most of whom are Indians and mestizos. The only church having a legal status is the Roman Catholic. To a certain extent provisions are made for free primary instruction, which is nominally compulsory.

Government.—The executive authority is vested in a president, assisted by a cabinet. The legislative power devolves upon a congress of two houses, the Senate and the House of Representatives. The president in 1902 was General Leonidaz Plaza, who as the successful candidate of the Liberal party, was inaugurated on August 31, 1901, for the four-year term.

Finance.—The monetary standard is gold and the unit of value the sucré, worth 48.665 cents, or one-tenth of a British sovereign. The chief source of revenue is customs duties and the largest expenditures are for service of the debt, public works, and war. For 1899 the revenue and expenditure amounted to 7,625,830 sucrés and 8,897,659 sucrés respectively; of the latter sum 6,662,945 sucrés were for administrative expenditure. For 1900 the estimated revenue and expenditure were 8,268,100 sucrés and 8,967,783 sucrés respectively; for 1902, 13,418,504 sucrés and 13,319,764 sucrés respectively. The foreign debt, held by the Guayaquil and Quito Railway Company, amounted in 1901 to £671,000 ($3,266,021). The internal debt has been reported at 7,500,000 sucrés.

Industries, Commerce, etc.—The principal industry is agriculture and the leading product cacao, which is cultivated in Los Rios, Guayas, El Oro, and other coast provinces. Cacao production in metric tons (2,204.6 pounds) is reported at 26,415 in 1899 and 18,820 in 1900. Official statistics of commerce are published irregularly. According to the Guayaquil chamber of commerce, the imports and exports in

1900 were valued at 13,416,878 sucrés and 16,260,413 sucrés respectively; in 1901, 15,126,281 sucrés and 16,392,333 sucrés respectively. In the latter year the United States stood first in the import trade, followed by Great Britain and Germany. The leading imports are cotton and woollen goods, ironware and machinery, and provisions. Cacao amounted to 27,703 metric tons in 1899, 18,826 in 1900, and 23,179 in 1901. In 1901 the leading countries receiving cacao were: France, 10,217 tons; Great Britain, 2697; Spain, 2309; United States, 2270; Germany, 1359. The values of the principal exports in 1901 are stated as follows: Cacao, 12,255,000 sucrés; vegetable ivory, 1,618,000; coffee, 649,000; rubber, 571,000; hides, 384,000; straw hats, 380,000. Imports to and exports from Ecuador by countries of greatest importance were respectively in 1901: United States, 3,966,000 sucrés and 2,785,000 sucrés; Great Britain, 3,575,000 and 2,036,000; Germany, 2,712,000 and 2,143,000; France, 1,996,000 and 6,694,000. Durán (opposite Guayaquil) is connected by rail with Chimbo, about 67 miles distant. From Chimbo a line is under construction to Quito, 219 miles.

History.—In the spring of 1902 investigations were made by the American state department into claims of unjust treatment brought by American railway contractors in Ecuador against the Ecuadorian courts. According to Señor Luis F. Carbo, the Ecuadorian minister at Washington, the cause of the trouble was the repudiation by the railway company of a contract made by its agent for the employment of native labor. Señor Carbo in the name of his government finally gave assurances that the case would be properly adjudicated. The efforts of the United States consul-general at Guayaquil, Mr. Perry M. De Leon, in behalf of the Americans were such that he became *persona non grata* to the Ecuadorian government, and he was succeeded by Mr. Thomas Nast (*q.v.*), who was nominated on May 1.

On the evening of July 16, 1902, a fire broke out in Guayaquil which destroyed about ninety city blocks, including the customs house, railway station, churches, colleges, banks, and numerous dwellings and business houses. There was some loss of life and the estimated property loss was reported at about $5,000,000.

Favorable comments were made in 1902 upon the administration of the republic under President Plaza.

EDUCATIONAL ASSOCIATION, NATIONAL, organized 1857 and reorganized 1870, includes eighteen departments, covering every important phase of educational work. These are the national council of education, kindergarten, elementary, secondary, higher, normal, superintendence, manual, art, music, business, child study, physical training, science instruction, school administration, library, deaf, blind and feeble minded, and Indian education. The forty-first annual meeting was held at Minneapolis, Minn., July 8-11, 1902. The enrollment for 1902 was 10,350, a slight increase over the attendance at the Detroit meeting in 1901, but the permanent active membership had increased from 2810 to 3215. The officers of the association elected for 1902-03 were: President, Charles W. Eliot, Cambridge, Mass.; secretary, Irwin Shepard, Winona, Minn.; treasurer, W. M. Davidson, Topeka, Kan. Among the important addresses delivered at the meeting were: *Some Pressing Problems,* President Butler, of Columbia; *The Work of the Southern Education Board,* President Alderman, of Tulane; *Devotion to Truth,* Archbishop Ireland; *A Statement of the English Ideals of Education and of England's Debt to America,* Hon. Michael Ernest Sadler; *Education of the American Farmer,* Hon. James Wilson; *Education in the Philippines,* President Schurman, of Cornell; *Educational Conditions and Progress in China,* C. M. L. Sites, secretary of the Educational Association of China. The total receipts of the association for the year ending July 1, 1902, were $32,266.48, and its expenses $29,979.34.

EDUCATION IN THE UNITED STATES. Progress in 1902 was along many lines, though the greater interest centred around a few questions and the greater activity in a few lines of work. Among these a leading one has been the movement towards the consolidation of district schools.

Consolidation of the District Schools.—The educational reform movement of the second quarter of the nineteenth century, led by Horace Mann, had for its chief aim the abolition of the control of schools by districts and the substitution of the town or township supervision and management. This reform even in Massachusetts was not made permanent until near the close of the third quarter of the century and so far as it influenced the greater part of the country only resulted in a very superficial supervision of a general character. The district school continued and yet continues to be the typical school of the greater part of the United States. For the past ten years a widespread movement towards the amalgamation of school districts into larger units not only of supervision but of direct administration and tuition, has been going on without attracting the attention of the public. Especially during the year 1902 the public awakened to the significance of this movement and educational authorities throughout the country became alive to its importance and

are being actively enlisted in furthering the tendency. The movement in the time of Horace Mann worked from above downwards: the movement of the present time has sprung up in the localities themselves and is indigenous in many parts of the country. Certainly no more important educational movement exists at the present time, nor one which promises a greater improvement in the efficiency of our public school system. The object of the plan is to consolidate a number of district schools, of small attendance, of meagre equipment and inadequate teaching facilities, into one large graded school employing three or more teachers, better remunerated and hence better prepared for their work. The opportunity for this consolidating movement is to be found in the small enrollment and still smaller attendance of the average country schools. More than 2500 of Iowa's 13,000 schools have an average attendance of less than ten pupils, and 9000 of them an average attendance of less than twenty. More than 50 per cent. of the schools of Indiana have an attendance of less than twenty; more than a thousand schools in Wisconsin an attendance of less than ten. It is not an unknown case for a district school to continue in session for the entire winter with only one pupil. This is a condition not simply in the middle west, but is true of many of the New England States and yet more so of the Southern States. This condition in turn explains the low salaries, and short term of office of the teachers of those schools. Perhaps the most important count in the indictment of inefficiency made against our public school system is that the rate of attendance to enrollment for the whole country is only 68 per cent. The means now being adopted for the betterment of these conditions are the abolition of two-thirds or three-fourths of the district schools in a given town or township, and the conveyance of the children of the entire region to a central school by means of wagons driven by public officials, and supported at public expense. This plan of public conveyance was first provided for by Massachusetts in 1869, but only of recent years has it come into more general favor. The advantages claimed by this system are: (1) teachers better prepared, better paid, and of longer term of service; (2) a larger enrollment of pupils, a larger average attendance, and a far greater punctuality; (3) better classification of pupils with the resulting advantage to both teacher and pupils; (4) better supervision on the part of both local and general authorities; (5) larger classes, with a resulting increase in the interest and enthusiasm of the pupils; (6) a greater interest in school affairs manifested by the community and the opportunity of making the school a centre of the social life of the entire region; (7) improved hygienic conditions, both in respect to the exposure in going to and from school and in the larger, better ventilated and heated school buildings; (8) a lengthened school course, for in most of these consolidated schools a short high school course is added, made possible by the greater number of pupils and teachers and by the better classification; (9) a decreased cost of schooling per capita; if not an absolute decrease, as occurs in most regions, at least a relative decrease, taking into account the improved service and the extended courses of study. In general the plan brings to the rural schools all the advantages now to be found solely in the graded urban schools. Its sociological significance is quite as great as the educational one, for no one thing is doing more towards improving the character of rural living and rendering life under those conditions satisfactory so far as opportunities for bettering the condition of children is concerned. This movement, begun independently in Massachusetts, New York, Ohio, Kansas, Indiana, Michigan, and Iowa, has now spread until it is legally authorized in seventeen States, including, besides the foregoing, Maine, New Hampshire, Vermont, Rhode Island, Connecticut, New Jersey, Pennsylvania, Nebraska, North Dakota, South Dakota, and Florida. The movement has only just begun, and its publicity is of recent growth, but even now in Ohio 23 townships have completely consolidated their schools, with a number more of partial consolidations, while the plan is in partial operation in 44 counties in Indiana and in 28 in Iowa. One of the most noted of these consolidated schools is the one being undertaken under the auspices of the Southern Educational Board in Knox County, Tenn., now the basis of a general industrial school of the type recently found so helpful in the south. The teachers of the summer school of the south, as well as the Southern Educational Board, have officially commended this plan for that region, while the whole subject is receiving most encouraging attention by meetings of superintendents and educators all over the country.

Educational Activity in the South.—No educational movement of 1902 attracted greater attention than that in the Southern States. This movement has been gathering impetus for several years and is now attracting national attention, as it certainly is of national importance. Three things have brought the movement into public notice during the past year: The publication of material based upon the census reports, the work of the Southern Educational Board, and of the General Educational Board, and the first session of the Summer School of the South. The last census revealed the fact that the percentage of illiteracy among the adult male whites of the South is greater now than it was in 1870, and that the percentage of

illiteracy of the total voting population in the ten Southern States was above 16, while that of the whole Union was below 11. The general educational situation in the South that is responsible for this condition is now being clearly set forth. In 1900 the ten States south of the Potomac and the Ohio and east of the Mississippi, including Louisiana, had 22 per cent. of the total population of the United States, and 25 per cent. of the school population; yet only 6½ per cent. of the total expenditures for public schools was made in these States, and only 4.1 per cent. of the $538,623,736 of public school property was within their borders. The per capita expenditure for public schools varied from 50 cents in Alabama and 51 cents in North Carolina to $4.93 in Massachusetts and $5.30 in Nevada. The average for the whole country was $2.38; for these ten States only 86 cents. The average per capita for these States was less than one-third the average for the whole country and only a little more than one-fifth the average for the North Atlantic and Western States. The average salary paid teachers for the entire school year varied from $87 for males and $78 for females in North Carolina to $1290 for males and $496 for females in Massachusetts. The average for the whole country, exclusive of these ten States, was $455.02 for males and $312.22 for females; for these ten States $175 for males and $150 for females. The average number of days of schooling for each child of school age varied from 22 in North Carolina to 107 in Massachusetts. For the North Atlantic States it was 87, for the North Central States 82, for the Western States 80, for these ten Southern States 43. It should be remembered also that only 154,000 of the 5,645,164 children of school age in these ten States were reported as enrolled in private schools, primary and secondary. The total school fund of these ten States was only one million dollars more than the school fund of Ohio, and the total value of their public school property was only one-half the value of the public school property of Ohio.

For some years past a movement of considerable magnitude has been under way, working toward improved educational conditions in these States. During the year 1902 the movement attracted national attention as it centred in the two organizations, the General Educational Board and the Southern Educational Board. The Southern Educational Board has been working for several years under the leadership of its president, Robert C. Ogden, of New York City. Each year a general conference is held in some Southern State which seeks to interest the people of that region and the educators and philanthropists of the entire Union. The work of the board is largely that of educating public opinion and stimulating private interest and philanthropy. The bureau of information of this board, located at the University of Tennessee, has issued four series of publications, one being issued bi-weekly to the press of the South. In this way educational information is distributed to more than 1300 newspapers and journals, to over 600 county and city superintendents of schools, to more than a thousand schools, and to a great number of private parties and public officials. More than a thousand addresses have been delivered under its auspices. The General Educational Board was organized at the beginning of 1902 and offices were opened in New York in April. The application for a charter from Congress brought the organization prominently before the public, with the result of much confusion and misunderstanding. The organization does not propose to supplant a single educational institution or even to found new ones, but to strengthen those in existence. It proposes: (1) To promote education within the United States of America, without distinction of race, sex or creed. (2) To cooperate with other organizations interested in educational work, and to simplify and make effective the general work of education, avoiding unnecessary duplication. (3) To develop the public school system, especially in rural districts. (4) To aid in the maintenance and improvement of educational institutions already established. (5) To further the establishment of training schools for teachers, especially those designed to educate teachers of industrial and manual training. (6) To develop the principle of self-help by urging increased local taxation, local contributions, or by other means. (7) To collect full information and statistics in respect to the educational matters in the districts covered by the operation of the board, which shall be kept at a general office. (8) To furnish the public with information, suggestions and counsel, and for this purpose, to act somewhat as a clearing-house for educational statistics and data to be collected by the board. (9) To educate public opinion in all matters pertaining to the general cause of education by publication of reports through the daily press and by other means. (10) To promote by all suitable means every form of valuable educational work. During the year the board duplicated in a great number of places in the Southern States all the contributions that a town or county would raise to improve the schools and in a similar way all the contributions of friends of existing institutions that had an immediate and beneficial influence on the school system. The aim of both boards is primarily to arouse public interest, to lead to an increased local taxation for schools, to improve the character of the teaching body by providing better opportunities for pedagogical

training. The movement for the consideration of schools finds especial favor in the propaganda and it is especially rural schools that are receiving assistance. The hope is to improve agricultural methods and the general conditions of rural life. Instruction in the schools is to be much more practical and the industrial and manual training, domestic science and instruction in agriculture are to be emphasized. In carrying out one of its purposes the first session of the Summer School of the South was held at the University of Tennessee, at Knoxville, with a registered attendance of over 2000—the largest summer school in the country.

Enlarged Scope of the Work of the School.—The somewhat vague feeling that has existed for a number of years that the school is not doing all that it should in the preparation of children for their adult life, and that the intellectual instruction furnished by the school was only one factor in the education demanded by the future American citizen, has begun to take shape in many practical attempts to broaden the work of the school. Certainly the question itself is one of general interest for educators and its discussion occupied a prominent part in the various educational meetings of the year, notably that of the National Educational Association at Minneapolis. In the larger cities, especially New York and Chicago, where the public school deals with a larger Irish, Polish, and Bohemian population than is to be found in any city in Ireland, Poland, or Bohemia, and where, as in some wards in Chicago, more than forty different nationalities are found, it is essential that educational means other than the traditional ones be called upon to prepare for citizenship. The mere teaching of the English language is not sufficient. The child loses his respect for the more stable and conservative aspects of the civilization of his parents and frequently gets but the superficial trappings of the new; it is essential that he be introduced to as many varied phases of the social life and ideals of the new community as possible. In a similar way the minute specialization of all industries lays upon the school new duties in the way of a broader preparation and a supplementing of the narrow life forced on one through industrial conditions, by broader social activities centred around the school. And even in typical American communities, those of a rural character, if the very source of American vigor and manliness is to be preserved it is seen that the school has the duty of making life under such conditions more attractive, more full of interest and enjoyment and of promoting an education that will bear more directly upon the immediate problems of everyday life. Consequently there are many movements towards increasing the efficiency of the schools in these respects. An official statement on this point by Mayor Low, of New York, gives some of the facts. "The use now being made of school buildings, for other purposes than the regular school work, is interesting. Vacation schools in Manhattan and the Bronx were availed of (*sic*) by 385,496 children; twelve evening play centres, since January 1, by 560,136; roof playgrounds, in Manhattan and the Bronx, by 305,789. Under the authority of the board of education certain outside playgrounds have been conducted, and the following figures show the use made of them. Forty-one playgrounds in Manhattan and the Bronx were used by 725,058 children; twenty in Brooklyn by 569,134; ten open-air playgrounds and six piers by 418,309. In these figures, of course, the same child is counted every time that he was on the grounds. There are also baths in one school building that have been largely used. It is clear, therefore, that the school buildings are beginning to play an important part in the life of the children, aside from their educational function." Some of the school buildings have been opened for Sunday evening concerts under the auspices of various civic clubs. This, however, has met with opposition from some professional denominations. The free evening lectures and concerts are meeting with increased favor. In New York City more than three thousand lectures were given during the past year, with a total attendance of upwards of 900,000. The use for social purposes of the school rooms and gymnasiums by the people of the community at all vacant hours and on Saturday, Sunday, and during the summer vacation, is now being advocated and to a limited extent tried. In this way recreation and means for social intercourse are furnished the people. It is being recognized that schools are for the adults as well as for the children. In one other respect is the school reaching out, and that is by attempting to find and develop special talent among both youth and adult. Such purposes are served by the evening schools, by such institutions as the Cooper Union, and by such experimental schools as the recently established Speyer School of the Teachers College. In a similar way a very general attempt at the introduction into the country schools of elementary instruction in agriculture, in nature study, and of some of the practical and domestic arts, is now being made. This movement is fostered by the State agricultural colleges, by the United States secretary of agriculture, by the Southern Educational Board, and forms one aspect of the movement for consolidation and improvement of rural schools. As above noted, this same movement for consolidation makes for the broadening of the function of the school by making it a social centre as well.

Medical Inspection of Schools.—The spread of disease through the public schools has long been recognized as a menace, but little has been done to control it save by abandoning school sessions in case of epidemics. The past year has seen more systematic and scientific attempts to control this difficulty. During the school year 1900-1901, the New York City school board employed 140 inspectors, who made 47,150 visits to schools and examined 87,980 children of whom 8837 were excluded. The rapid spread of certain diseases, especially cutaneous ones, led to more drastic measures. During the first three weeks of the fall term 34 medical school inspectors were employed for full time with 30 district assistants. During this period 2270 visits to schools were made, 288,324 were examined, and 10,635 were excluded for longer or shorter periods. The larger part of them were excluded for parasitic diseases of the head and contagious diseases of the eye, especially trachoma which eventually produces blindness and is notably prevalent in the foreign quarters, and especially among recent immigrants. Special clinics were established for such children in several hospitals and finally trained nurses are appointed for certain schools to look after the afflicted children. The trained nurse will probably become a permanent attachment to the school administration of the large public schools in such regions.

Measurement of School Results.—The exact estimate of the direct value of any particular portion of school work is one of the most difficult things to obtain. And yet no certain improvement of existing school work can be obtained without some such measurement. The seemingly endless discussions about the curriculum, and about methods would be clarified wonderfully if some exact information of truly scientific character could be obtained. Widespread discussion of the results of the public school system was caused by an address delivered in the autumn of the year by President Eliot, of Harvard, before the Connecticut State Teachers' Association. Existing social conditions, as to labor troubles, crime, illiteracy, the vast amount of worthless reading matter, the character of the press, etc., were cited as partially due to the failure of the public schools to accomplish their purpose. Larger expenditure of money for the public schools was called for to the end that the length of the school term might be increased and the character of teaching improved. But more significant than this public discussion of general results is the movement initiated by Dr. J. M. Rice, of the *Forum*, for the scientific measurement of school results in specific subjects. Most of our educational theories are based upon opinion only and that opinion frequently based upon very narrow experience; yet such theories direct practice, and consequently the greatest variety of method prevails in our schools. Dr. Rice's inquiry is in an attempt to get at absolute results by comparative methods of investigation and the outcome will be awaited with the greatest interest. It is to be regretted that such investigations meet with the opposition of school men, an opposition based largely upon the criticism made some years ago upon the public school system of many cities by Dr. Rice.

Teachers' Organizations.—A somewhat startling development of 1902 was the incorporation of the Teachers' Federation of Chicago in the Chicago Federation of Labor and an effort for a similar union in New York City. Hitherto the many organizations of American teachers have had professional improvement for their sole purpose. The new tendency, however, has for its aim the betterment of economic conditions. Such ends have been achieved in New York of late years without resorting to trade union affiliation though the tendency has been decidedly towards the use of methods similar to those used by other bodies for securing class legislation. In Chicago this radical step was brought about by the continued refusal of the authorities to grant the reasonable demand of the teachers for better salaries. Some time ago a new salary schedule was granted after an organized fight. The authorities refused to honor this schedule on the ground that there were not sufficient funds to meet the new demands. The teachers' organization led in the movement which forced some tax dodging corporations to increase the city funds by over a million dollars, which were soon devoted to other purposes. In addition to this the teachers were deprived of a day's pay for the suspension of work on Labor Day, which is a legal holiday. The upshot of the many injustices was that the teachers sought affiliation with the labor organizations which command political influence to the extent of 200,000 votes. While no doubt now the demand will be granted, the precedent for teachers' organizations in our American cities will be bad, for it will divert such organizations from their more laudable purposes. It is true that the organizations of English teachers is on a trade union basis and that they have similar aims and use similar methods, but the result is seen in a lack of professional spirit and higher purposes.

Books of the Year.—Among the more important books published in 1902 are: *The Making of Citizens; Schools at Home and Abroad*, by R. E. Hughes; *The Making of our Middle Schools*, by Elmer E. Brown; *A Syllabus of the History of Education*, by Elwood P. Cubberley; *Education and the Larger Life*, by E. Hanford

Henderson; *Thoughts on Education*, by Mandel Creighton; *Principles of Teaching*, by J. J. Findlay; *A Schoolmaster's Afterthoughts*, by S. Krine; *Educational Foundations of Trade and Industry*, by Fabian Ware; *The Ideal School*, by F. P. Search; *Teaching of English*, by Percival Chubb.

Statistical Summary of the Year.—The statistics gathered by the department of education are necessarily a year late in their publication, since they are first gathered and collated by local and State authorities. These latest figures therefore relate to the school year of 1900-1901. There were in attendance in schools and colleges, public and private, 17,299,230 pupils, this being an increase of 278,520 over the previous year. Of the number 15,710,394 were enrolled in public institutions. In addition to these numbers, there were 563,550 persons enrolled in schools of special type, such as business schools, schools for defectives, reform schools, and city evening schools. The total enrollment in all educational institutions was

States and Territories.	Estimated Number of Children 5 to 18 Years of Age, 1900.	Average Daily Attendance.		Average Duration of School in Days.		Total Expenditure.	
		1900	1901	1900	1901	1900	1901
NORTH ATLANTIC DIVISION.							
Maine	161,155	97,697	97,038	141	146	$1,712,795	$1,727,175
New Hampshire	88,806	47,276	47,276	147.65	147.65	1,052,202	1,052,202
Vermont	80,560	47,020	47,964	156.15	156.20	1,074,222	1,106,099
Massachusetts	634,510	366,136	371,048	189	185	13,826,243	14,179,947
Rhode Island	103,810	47,124	49,038	191	191	1,548,675	1,629,959
Connecticut	213,770	111,564	115,264	189.01	189.53	3,189,249	3,391,886
New York	1,772,570	857,488	873,157	175	177	33,421,491	36,395,270
New Jersey	483,380	207,947	221,273	186	183	6,608,692	7,189,712
Pennsylvania	1,702,340	854,640	847,445	166.6	165.6	21,476,995	22,813,395
SOUTH ATLANTIC DIVISION.							
Delaware	48,982	25,300	25,300	170.1	170.1	453,670	453,670
Maryland	346,230	134,400	135,515	183	190	2,803,032	2,549,497
District of Columbia	61,726	35,463	36,672	179	176	1,076,620	1,485,671
Virginia	584,300	203,136	203,136	119.4	119.4	1,971,264	1,971,264
West Virginia	295,656	151,254	151,254	106	106	2,069,123	2,009,123
North Carolina	636,890	206,918	253,019	70.5	76.1	950,317	1,152,920
South Carolina	471,200	201,295	208,114	88.4	86.6	894,004	961,897
Georgia	752,520	298,237	310,453	112	112	1,980,016	2,063,366
Florida	168,525	75,003	75,325	98	96	765,777	771,936
SOUTH CENTRAL DIVISION.							
Kentucky	674,269	310,339	312,354	117.5	104.5	3,037,908	2,851,651
Tennessee	646,468	338,566	338,566	96	96	1,751,047	1,751,047
Alabama	610,351	297,805	297,805	78.2	78.3	923,464	923,464
Mississippi	521,800	201,593	201,593	105.1	105.1	1,306,186	1,306,186
Louisiana	459,300	146,323	140,242	120	120	1,135,125	1,236,677
Texas	1,052,170	438,779	438,779	110.27	110.27	4,465,255	4,640,470
Arkansas	449,536	195,401	202,837	77.5	84	1,369,810	1,396,594
Oklahoma	124,788	63,718	63,718	95.3	95.3	1,686,095	686,095
Indian Territory	144,509	.....	12,166	3	147	.....	357,217
NORTH CENTRAL DIVISION.							
Ohio	1,110,250	616,365	610,622	165	163	13,335,211	14,245,886
Indiana	706,070	429,566	420,276	152	152	8,182,526	8,832,534
Illinois	1,364,360	737,576	756,558	152	159.6	17,757,145	19,031,463
Michigan	661,450	355,226	358,600	163.8	163	7,297,691	7,195,700
Wisconsin	623,910	309,800	278,803	160	169	5,493,370	5,881,473
Minnesota	529,960	243,224	239,462	169	173.25	5,690,013	6,247,273
Iowa	645,690	373,474	373,547	160	160	8,496,522	8,835,048
Missouri	928,965	460,012	458,986	144	145	7,816,050	7,860,158
North Dakota	95,597	43,560	43,560	155.7	155.7	1,526,090	1,526,090
South Dakota	129,745	68,000	64,770	129.1	144	1,605,623	1,611,388
Nebraska	326,950	181,874	182,589	135	133	4,403,222	4,170,050
Kansas	439,470	261,873	259,039	126.25	128.3	4,622,364	4,656,210
WESTERN DIVISION.							
Montana	58,240	26,300	25,900	107	107	923,310	879,882
Wyoming	22,100	9,650	9,650	110	110	253,551	253,551
Colorado	140,170	73,291	74,735	149.8	148.5	2,793,648	2,861,358
New Mexico	61,251	22,433	23,412	96.6	148	343,429	723,048
Arizona	31,778	10,177	10,177	125	125	299,730	299,730
Utah	92,776	50,595	53,560	151	152	1,094,757	1,342,858
Nevada	9,017	4,698	4,982	154	155	224,622	195,802
Idaho	46,309	21,962	21,962	106	106	400,043	400,043
Washington	137,320	74,717	81,400	127.6	119.5	2,375,753	2,299,313
Oregon	108,879	64,411	64,411	116.6	116.6	1,594,420	1,350,820
California	346,680	197,395	198,789	166.2	165.02	6,909,351	7,289,243
RECAPITULATION.							
North Atlantic Division	5,240,901	2,636,892	2,669,503	177.5	177.2	83,910,564	89,485,645
South Atlantic Division	3,356,029	1,331,006	1,398,788	111.9	112.4	12,903,823	13,439,344
South Central Division	4,683,191	1,992,524	2,008,060	100.2	96.4	14,674,890	15,149,371
North Central Division	7,562,417	4,080,460	4,046,812	155.9	157.5	86,165,827	90,073,228
Western Division	1,055,140	555,629	568,928	141.5	143	17,212,614	17,895,648
United States	21,897,678	10,596,511	10,692,091	144.5	144.2	$214,867,718	$226,043,236

17,862,780. The average length of the school term for the entire United States was 144.2 days; while this is a decrease of .3 of a day from the previous year, it is an increase from 132.2 days in 1870. The average amount of schooling per inhabitant was 5.14 years of 200 school days each. This average varies widely in different regions, being the lowest 2.97 in the States of the South Central division, and the highest 6.94 years in the North Atlantic division. This total is a marked increase for the whole country; in 1870 the average was only 3.36 years; in 1860 it was 434 days; in 1840, 208 days; and in 1800 it was, by estimate, only 86 days. The total number of teachers in the common schools of the United States is 430,004; of these 123,941 are men and 306,063 are women. There has been a marked decline in the relative number of male teachers during the last decade; in 1880, 42.8 per cent. of all teachers were male, while in 1901 only 28.8 per cent. were male. The aggregate value of school property is $577,000,000, having increased to that amount from $130,000,000 in 1870. The income from local taxes amounted to $161,245,764, having increased from $97,222,426 in 1890. For statistics of the public common-schools in the United States, see the table on the preceding page. For statistics of public and private high schools, universities and colleges, normal schools, and professional schools, see SCHOOLS, UNIVERSITIES AND COLLEGES, NORMAL SCHOOLS, and PROFESSIONAL SCHOOLS; for agricultural education, see AGRICULTURE (paragraph Agricultural Education). Many of the more important universities and colleges may be found under their own titles.

Deaths of the Year.—No account of the educational events of 1902 would be complete without some mention of the notable losses to the profession by death. Among these one figure, that of Colonel Francis W. Parker, was of national prominence. Few men have done more during the past half century for the work of the teacher than Colonel Parker, especially through the influences sent out for so many years from the Cook County Normal. Emerson E. White, who at one time was president of Purdue University and later head of the schools of Cincinnati, was another such leader. His influence was exerted more through educational magazines which he edited and through text-books. Both of these men were above all personal leaders and came into immediate contact with large numbers of teachers. Mrs. Alice Freeman Palmer, formerly president of Wellesley College and later dean of women in the University of Chicago, died December 6, 1902.

EDWARD, WILLIAM AUGUSTUS, Prince of Saxe-Weimar and field-marshal in the British army, died in London November 16, 1902. He was the son of Duke Bernard of Saxe-Weimar-Eisenach and of Princess Ida, the daughter of George, Duke of Saxe-Meiningen. Born October 11, 1823, in Bushy Park near London, he entered the British army as ensign in 1841, and was made regimental lieutenant in 1846 with the rank of captain. A marriage in 1851 with Lady Augusta Catherine, daughter of the fifth Duke of Richmond, was declared morganatic, but in 1866 a royal decree granted her the title of princess in Great Britain. Brevetted major in 1854, Prince Edward served in the Crimean war, participating in the battles of Alma, Balaclava, Inkerman, and in the siege of Sebastopol; and in 1869 he became a major-general. From 1870 to 1876 he was in command of the Home District, and after service in the Southern District was made general in 1879. He was in command of the forces in Ireland from 1885 until relieved by Lord Wolseley in 1890, was created a knight of the Grand Cross of the Bath in 1887, became colonel of the First Life Guards in 1889, and in 1897 was made field-marshal by Queen Victoria.

EGGLESTON, EDWARD, an American author, who died at Owl's Nest, Durham Bay, Lake George, N. Y., September 3, 1902, was most generally known for his *Hoosier Schoolmaster* (1871), a "story of primitive, semi-barbarous life in the Indiana of the early thirties." Born at Vevay, Ind., December 10, 1837, he was successively farm-worker and clerk, in 1857 entered the ministry of the Methodist-Episcopal Church, for some time rode a four-weeks' circuit in southeastern Indiana, and later for nine years a circuit in Minnesota. As journalist he was at Chicago associate editor of the *Little Corporal* (1866-67) and editor-in-chief of the *National Sunday-School Teacher* (1867-70); at New York superintending editor of the *Independent* (1870-72) and editor of *Hearth and Home* (1871-72). From 1874 to 1879 he was pastor in Brooklyn of the Church of Christian Endeavor, an independent organization, whence was derived the name of the well-known religious society founded by F. E. Clark. Having then retired from the ministry, he was until his death wholly occupied with literary work in fiction and history. Though he had previously written *Mr. Blake's Walking Stick* (1870), the *Hoosier Schoolmaster* (1871), originally printed in *Hearth and Home*, was his first success, as it was also one whose vogue he never duplicated. In this book he presents with delicate humor, in all their quaintness of speech, the settler types familiar to his own itinerant experience. The unstudied effect of this volume he did not quite attain in other works of fiction more carefully prepared. Of interest, however, are *The End of the World*

(1872), based on the strange occurrences attending the Adventist enthusiasm in the Middle West, and *The Circuit Rider* (1874). Other titles include *The Faith Doctor* (1891) and *Duffels* (1893). From the apprenticeship of his fiction he passed to a more serious examination of American history, his interests being less in political events than in those developments which form what is known as the history of culture. *The History of the United States and its People* (1888); *The Beginners of a Nation* (1896), and *The Transit of Civilization from England to America* (1900), are his chief publications in this department. These have been highly praised for painstaking research and most readable style, though criticized for a slight lack of appreciation of the Puritan spirit in colonial America.

EGYPT, a state of northeastern Africa nominally under the suzerainty of Turkey, but practically under the protection of Great Britain. The capital is Cairo.

Area and Population.—Though Egypt proper—the territory north of the 22d parallel—has an estimated area of 400,000 square miles, the cultivated and settled area amounts to only about 13,000 square miles. According to the last census (1897) the population was 9,734,405, of whom about 92 per cent. were Mohammedan.

Government and Finance.—The head of the government is the khedive, Abbas Hilmi (since January, 1892). In him and his ministers is vested the final legislative authority. No financial measures, however, can be taken without the concurrence of the British financial adviser (Sir Eldon Gorst, since 1898). Practically "His Majesty's agent and consul-general" (Lord Cromer since 1883) is governor-general of the country. The government pays an annual tribute of about £660,000 to Turkey. The chief sources of revenue are the land tax, the tobacco monopoly, customs, and railways; the largest items of expenditure are service of the debt and internal administration. Revenue and expenditure in Egyptian pounds (worth about $4.993) have been respectively as follows:

	1899	1900	1901
Revenue	£E11,200,803	£E11,447,095	£E11,943,924
Expenditure	9,929,442	9,895,224	9,923,546

The figures for revenue are exclusive of balances from previous years. For 1902 the estimated revenue and expenditure were £E11,060,000 and £E10,850,000 respectively. The former figure includes £E215,600 as the contribution from the general reserve fund; in the estimated expenditures are included the following sums: Sinking fund on guaranteed loan, £E65,646; conversion economies fund, £E265,037; and general reserve fund, £E619,038. If Egypt were not hampered by this "peculiar system of acounts and estimates imposed by its international obligations"—as Lord Cromer pointed out—the estimates for 1902 would show £E10,844,000 for revenue and £E9,900,279 for expenditure. At the end of 1901 the balances of the reserve funds (established in 1887) stood as follows: Conversion economies fund (which is available for payments only with the consent of the Powers), £E4,490,500; general reserve fund (which may be applied to certain objects with the consent of the Caisse de la Dette), £E3,794,784; special reserve fund (which is at the disposal of the Egyptian government), £E1,287,352. At the end of 1901 the consolidated debt amounted to £E103,714,180.

Under Lord Cromer's new financial method of freeing the fellaheen from the local usurers, the National Bank of Egypt, between October, 1900, and September, 1901, lent the fellaheen £276,000 payable in part within one year and in part within five years. In the former class there were 13,030 separate advances, of which more than half were for sums less than £5; while in the latter class more than half were for sums less than £20. The percentage of failure in repayment is very small. Thus far this financial innovation seems successful. In May, 1902, it was announced that for furthering this system arrangements had been made for the establishment of an agricultural bank, with a capital of £2,500,000.

Army.—About 18,000 men make up the total strength of the Egyptian army, whose maintenance in 1902 cost nearly £E450,000. The commander-in-chief is a British officer, called the sirdar (Major-General Sir Reginald Wingate, since December, 1899). Under British administration the fellaheen, who were "the most cowardly men that ever carried arms under compulsion," have developed into capable soldiers. The British army of occupation, commanded by Major-General Sir R. A. J. Talbot, numbers about 4500; for its maintenance the Egyptian government appropriates annually £87,000.

Industries and Commerce.—The principal occupation of the people is agriculture, made possible by the Nile overflow. This is now regulated and used to better advantage for purposes of irrigation by a great dam at Assuan and a barrage and lock at Assiut. The last coping stone of the Assuan Dam was laid on July 30, 1902. (See DAMS.) The leading crops are cotton, sugar, and cereals; cotton is becoming

of especial importance. In the foreign trade imports and exports, exclusive of specie, have been as follows:

	1899	1900	1901
Imports	£E11,441,802	£E14,112,370	£E15,244,989
Exports	15,530,908	16,766,609	15,730,088

In 1901 the leading imports were: Cotton textiles, £E2,414,681; metals and metal wares, £E1,744,084; cereals, vegetables, etc., £E1,706,352; animals and animal food products, £E685,012; tobacco, £E595,621. The most important exports for the same years were: Raw cotton, 6,123,350 cantars (of 99.0492 pounds each), valued at £E11,-833,277, as compared with 4,868,596 cantars, valued at £E13,039,003 in 1900; and cereals, vegetables, etc., £E2,649,970. Trade with countries of greatest commercial importance was as follows in 1900 and 1901:

	Imports to Egypt.			Exports from Egypt.	
	1900	1901		1900	1901
Great Britain	£E5,300,447	£E5,568,498	Great Britain	£E9,141,982	£E8,013,911
Turkey	2,220,966	2,246,414	Russia	1,209,563	1,743,205
France and Algeria	1,314,869	1,406,435	France and Algeria	1,430,153	1,262,524
Austria-Hungary	900,958	1,051,200	America	1,035,600	1,016,455
Italy	661,347	802,156	Germany	900,824	778,096
Russia	608,901	612,346	Austria-Hungary	642,477	628,408
Germany	485,933	530,368	Italy	601,496	549,883
Belgium	494,751	496,768	Turkey	290,193	312,789
America	289,330	315,890	Belgium	121,165	83,083

Communications.—At the beginning of 1902 there were 2173 miles of rails, of which 1393 miles were owned by the state and the remainder (light agricultural lines) by private companies; of the total, 1510 miles were in the Delta. These figures do not include the military railway from Wady Halfa to Kerma and Wady Halfa to Khartum. In February, 1902, it was announced than an agreement had been made between the Egyptian government and the Suez Canal Company for the construction of a railway between Ismailia and Port Said and a commercial harbor at the latter town. The state telegraph lines at the beginning of 1902 had a length of 2365 miles with 9934 miles of wire. See SUEZ CANAL.

Lord Cromer's report for 1901 (published in 1902) showed steady progress in Egyptian development under British administration. "In Egypt proper it may be said that the foundations on which the well-being and material prosperity of a civilized community should rest have been laid." Lord Cromer noted improvements in finance, irrigation, locomotion by rail and by road, prison conditions, and otherwise. He said that in Egypt proper "for all practical purposes the institution of slavery no longer exists," and that the main interest of anti-slavery operations had been transferred to the Soudan, while the courbash as an instrument of government had been virtually abolished. The progress of education, however, though accelerated as much as possible by Lord Cromer, necessarily has been slow. But on the whole, as he points out, although British administration in Egypt is a system "replete with anomalies and theoretical imperfections . . . all the main features of western civilization have been introduced with such adaptations as have been necessitated by local requirements." For Egyptian archæology and the Egyptian Exploration Fund, see ARCHÆOLOGY; for the Assuan Dam, see DAMS.

Egyptian Soudan.—The Egyptian Soudan, under the joint administration of the British and Egyptian governments, extends from the southern boundary of Egypt (the 22d parallel)to Albert Nyanza and the northern frontier of Uganda. The area is estimated at 950,000 square miles. The inhabitants were estimated to number about 10,000,000 before the revolt of the Mahdi (the Sheikh Mohamed Ahmed of Dongola) in 1882, but during his rule and that of his successor, the Khalifa (Abdullah el Taaishi), there was an appalling depopulation and the country lapsed into ruin. The Khalifa's Dervish army was defeated by General Kitchener at Omdurman September 2, 1898, and on November 24, 1899, he was killed by the forces of Col. Sir Reginald Wingate. The joint administration of the country was undertaken with the convention of January 19, 1899, between the British and Egyptian governments. There are six provinces (Khartum, Dongola, Berber, Kassala, Sennar, and Kordofan) and three administrative districts (Wady Halfa, Suakin, and Fashoda), all of which are administered by military governors, under the governor-general, Sir Reginald Wingate, sirdar of the Egyptian army. The capital is the growing city of Khartum. The estimated revenue and expenditure for 1902 were £E224,374 and £E614,095 respectively, the deficit of £E389,721 to be made up by Egypt.

Under Anglo-Egyptian rule the Soudan has made considerable progress; the efforts of Sir Reginald Wingate and his inspector-general, Sir Rudolph von Slatin, have been mainly toward the rehabilitation of industries and transport facilities. Lord Cromer, however, has pointed out that in progress the Soudan naturally falls behind Egypt and that any notable changes in the near future are hardly to be expected. After extensive journeys in the Soudan, Sir Rudolph von Slatin, returning to England in the summer of 1902, said that in general the country was tranquil and reports of the disaffection of the sultan of Darfur were entirely untrue. He believed that the Senussi movement (for which see FRENCH SOUDAN) had little influence in the Egyptian Soudan, and that its leader was "a peaceful man whose only desire was that Moslems should lead a strict life." As to communications the inspector-general said that the cutting of the sudd from the Nile had rendered that waterway from Khartum to Uganda open throughout the year. In the Bahr-el-Ghazal the government was opening the Djur River, by which steamers will be able to ply between Khartum and Wau, the chief station of the district (Fashoda), thus obviating a land transport journey of 120 miles. So excellent are water communications in the Soudan that General von Slatin believes the proposed construction of the Cape-to-Cairo Railway between Khartum and Uganda will be unnecessary. He strongly recommended, however, the construction of a line from Berber to Suakin. Another line is proposed to extend from Khartum westward to the state of Wadai (French).

On November 30, 1898, General Kitchener proposed that "at Khartum there should be founded and maintained with British money a college bearing the name of the Gordon Memorial College, to be a pledge that the memory of Gordon is still alive among us, and that his aspirations are at length to be realized." He added: "We should begin by teaching the sons of the leading men, the heads of villages, and the heads of districts. The teaching in its early stages would be devoted to purely elementary subjects—such as reading, writing, geography, and the English language. Later, and after these preliminary stages had been passed, a more advanced course would be instituted, including a training in technical subjects specially adapted to the requirements of those who inhabit the valley of the Upper Nile. The principal teachers in the college would be British, and the supervision of the arrangements would be vested in the governor-general of the Soudan. I need not add that there would be no interference with the religion of the people." Plans were made immediately for carrying out this project along the lines suggested, the necessary money was quickly subscribed, and on January 5, 1899, the foundation stone was laid by Lord Cromer not far from the old Burrie fort which Gordon defended during the siege. On November 8, 1902, the college was formally opened by Lord Kitchener, who was on his way from England to take command of the army in India. The headmaster is Mr. J. Currie.

For the Anglo-Abyssinian treaty of May 15, 1902, see ABYSSINIA.

EISENLOHR, AUGUST, a German Egyptologist, died at Heidelberg, February 24, 1902. He was born in Mannheim, Baden, October 6, 1832, and at first followed the theological courses of Göttingen and Berlin universities; but, prevented by illness from finishing, he began the study of the natural sciences with especial attention to chemistry, which he studied under Professor Bunsen and Professor Erienmayer. After receiving the degree of Ph.D. in 1859, he established himself in the manufacture of color, but in 1864 became interested in the study of hieroglyphics under Chabas and Brugsch, and in 1869 was appointed private-docent of the Egyptian language and archæology at Heidelberg. In the same year he made extended tours through Syria, Greece, and Egypt, and at Alexandria studied the Harris papyrus which later became the property of the British Museum, and of which he published a description and translation in 1872. He was nominated professor-extraordinary at Heidelberg in 1872, and became an honorary professor in 1885. Besides a revision of the second part of Baedeker's *Egypt*, he published *The Political Condition of Egypt Before the Reign of Rameses III.* (in the transactions of the London Society of Biblical Archæology, 1872), and *Ein Mathematisches Handbuch der alten Ægypter* (1877).

ELECTRICAL SHOCK, as a cause of death, is still a more or less obscure subject. F. B. Aspinwall, an English engineer, endeavors to answer several interesting questions in regard to the cause of death and the phenomena accompanying electrical accidents. He says that it is probable that not every one is equally susceptible, and that there are a number of diseases, especially such as affect the general nutrition and strength, which render a fatal result probable. The path taken by the current is important; if the vital organs be directly in the transit of the current, the result is apt to be instantly fatal. Severity of shock is proportional to perfectness of contact. Death is usually accompanied by a peculiar cry, inspiratory in character, which is probably due to the tremendous spasm of all the muscles accompanying death and directly dependent upon spasms of the diaphragm. Direct

currents are more destructive within the same limits than the alternating. While little can be done for persons suffering from electrical shock, the writer suggests that the head should instantly be lowered to make the blood gravitate to the brain. He cites two cases where this was done, and recovery resulted after a shock of two thousand volts. On the other hand P. J. Gibbons, of Syracuse, N. Y., holds that much may be done to resuscitate a person unconscious from an electrical shock. He advises using Sylvester's method of artificial respiration and then applying heat to the body. After respiration is resumed, brisk friction of the limbs should be practiced, always rubbing toward the heart. Gibbons has devised a double bellows which is connected by means of a tube with the nostrils. This apparatus alternately pumps air out of and pumps air into the lungs. It should be used continuously for from three to six hours, and may be resumed after respiration has been restored and then has failed again. Gibbons advises physicians to use electricity as an adjuvant.

ELECTRIC LIGHTING. The Nernst lamp came into commercial use during 1902. It was invented by Professor Nernst, of Göttingen, but has been developed in this country by a number of electrical engineers. Use is made of a small rod or strip, called the glower, composed partly of some of the rare earths. This refractory material is an insulator at ordinary temperatures, but at high temperatures becomes a good conductor and luminant. The rod replaces the filament of the incandescent lamp, but is not enclosed in a vacuum. To bring the lamp into service the material must first be raised to incandescence and for this purpose a heating device is arranged. This glow lamp produces a white light of uniform quality. The life of the glower is placed as high as 800 hours of service, and of the heater at 2500 hours. The Nernst lamp is said to fill the gap between the larger incandescent and the smaller arc lamps. The well known incandescent lamp is now made in sizes ranging from 4 to 150 candle-power, besides the tiny lamps for special purposes. The 16 candle-power lamp dominates, but for interior illumination there is a tendency to use smaller lights, and more of them, thus giving a better distribution of the light, avoiding glare, and making possible far more artistic effects. In arc lighting, enclosed arcs are rapidly superseding the open type. The use of alternating currents for arc lighting also continues to increase. The combination of light and power plants, and the increased size of generating stations, also continue. In fact, consolidations of different classes of service are not stopping here, for it is now common to find a single company controlling the street railway, electric power, gas and electric lighting, central heating, and water supply service of a community, and frequently combinations of several of these undertakings extend over a number of municipalities.

ELECTROLYSIS OF GAS AND WATER PIPES. The electrolytic injury to gas and water mains caused by stray electric currents from trolley street railway lines not properly provided with circuits for returning the current to the power-house continues unabated, but municipal authorities are trying hard to place the responsibility for such action upon the street railway companies, and to secure injunctions against the use of water and gas mains for return circuits. The city of Dayton, O., in April, 1902, obtained an injunction from the court of common pleas of Montgomery County, ordering the City Railway Company to introduce such improvements in its system as would make it "conform with the present standard of the art of operating single trolley roads." The court also declared that the company had been and then was "operating its road in a negligent manner, causing continual damage to the water pipes of the plaintiff." The decision in full, together with a review of the case, is given in the thirty-second annual *Report* of the Dayton Water Board (Dayton, O., 1902). The city of St. Paul, early in 1902, brought suit against the Twin City Rapid Transit Company, for $500,000 damages to the city water mains on account of electrolysis, and asked an injunction to prevent further damage. Norfolk, Va., and Atlantic City, N. J., passed ordinances in 1902 for the prevention of electrolysis. The North Shore Gas Company of Waukegan, Ill., has installed rubber-packed Dresser expansion joints 1200 feet apart, in a long gas main, supplying a number of towns, and to give further insulation it has cut the pipe line in two places and made a break of ten feet in each case by inserting insulating couplings with rubber packing. The gas main is paralleled for thirteen miles by a trolley line, and tests showed that the gas main was returning 25 per cent. of the trolley current to the power house. These statements are based on a paper on *Electrolysis of Underground Metals*, by Mr. Edwin J. Humiston, read before the Western Gas Association early in 1902. Attempts to prevent electrolysis in Great Britain were reviewed by Mr. W. H. Humphreys, Waterworks Engineer of York, England, in a paper read before the British Association of Gas Engineers in the autumn of 1902. An abstract of the paper, with the electrolysis regulations in full, of the British Board of Trade, was published in *Engineering News* (New York) for October 2, 1902.

ELEMENTS, NEW. See CHEMISTRY.

ENGINEERING. See BRIDGES; CANALS; DAMS; ELECTRIC LIGHTING; ELECTROLYSIS OF GAS AND WATER PIPES; PAVEMENTS, STREETS, AND ROADS; RAILWAYS; SEWAGE PURIFICATION; SEWERAGE; SHIP-BUILDING; TUNNELS; WATER PURIFICATION.

ENGLAND. See GREAT BRITAIN.

ENGLAND, CHURCH OF, the "established" church "in its recognition as the national organization for the maintenance of Christian belief and practice." It is administered through two provinces, Canterbury and York, each of which is presided over by an archbishop. There are, besides the 2 archbishops, 33 diocesan bishops (England and Wales), 22 suffragan bishops, 8 assistant bishops, and 90 colonial and missionary bishops. The clergy in England and Wales number about 30,000, the parishes, 14,000, church sittings (estimated), more than 6,000,000. The total of voluntary offerings in 1902 was $41,085,000, of which $3,000,000 was contributed to home missions, and a sum exceeding $4,100,000 to foreign missions.

The confirmation of Canon Gore as bishop of Worcester was the occasion of considerable disturbance, several persons objecting to his confirmation. Notable among them was John Kensit (*q.v.*). The opposition, having presented several grounds for their attack which were ruled out by the vicar-general, appealed successfully for a mandamus compelling the hearing of their cause. The lord chief justice, however, gave a decision upholding the vicar-general and vacating the writ. Canon Gore was consecrated February 23, 1902. One of the noteworthy events of the year was the healing of the Natal schism in South Africa which had existed some forty years, having been caused by the treatment of Bishop Colenso at the hands of the ecclesiastical authorities. The Anglican Synod in Canada, which convenes every six years, met in 1902 in Montreal. Its most important action was the organization of a general missionary society to represent the entire church in Canada—a movement in behalf of greater administrative efficiency, especially of promoting the interests of the church in the western provinces. The Anglicans of Canada number nearly 650,000. There was, during 1902, considerable discussion on a distinctly perceptible approach between Anglicans, particularly those opposing the "High Church" tendency, and non-Conformists; but, on the other hand, the bitterness aroused by the Education Bill probably is more than sufficient to offset any true progress toward sympathy. (See GREAT BRITAIN, paragraph Education Bill.) The forty-second annual Church Congress was held at Northampton, beginning October 4, 1902. Among a number of interesting topics were *Home Reunion*, the *Duty of the Church in South Africa*, *Christianity and Social Questions*, and *The Miracles and Supernatural Character of the Gospels*. In 1903 the congress will meet at Bristol. The Most Rev. Frederick Temple (*q.v.*), archbishop of Canterbury and primate of all England, died December 23, 1902.

ENGLISH, THOMAS DUNN, best known as the author of "Ben Bolt," died at Newark, N. J., April 1, 1902. English, whose name was a corruption of Angelos, was born in Philadelphia, Pa., June 29, 1819. He graduated in medicine at the University of Pennsylvania in 1839, after brief practice read law at Philadelphia, and in 1842 was there admitted to the bar. From 1844 to 1852 he was a journalist in New York City, where in 1845 he edited the one volume of a literary magazine, *The Aristidean;* in 1848 became connected with *John Donkey*, a humorous periodical, and was constantly active as a contributor to the press of both verse and prose. After residence in Virginia in 1852-59, he resumed medical practice in New Jersey. In 1863-64 he was a member of the New Jersey Assembly, and represented his district in Congress from 1891 to 1895. In 1900 he was placed in nomination for the State Assembly, but failed of election. During his public career he was known as an effective debater, a tariff-reformer, and an advocate of workingmen's rights. Within the general mind he lived—to his own perplexity and displeasure—largely by his ballad "Ben Bolt," written for Willis's *Mirror* in 1843, once much sung to Nelson Kneass's music, and revived in popularity through its introduction into Du Maurier's *Trilby* (1894). Another poem, *The Gallows Goers*, with capital punishment as subject, was widely circulated. Dr. English further wrote essays and pamphlets unreckoned: *1844* (1847), a political satire; *Ambrose Fecit, or the Peer and the Painter* (1864); *American Ballads* (1882); *Jacob Schuyler's Millions* (1886); *Select Poems* (1894); and other volumes. He received the degree of LL.D. from William and Mary College in 1876.

ENTOMOLOGY. The important advances made in entomology during 1902 were not of such general significance as to attract the attention of the public, and what is to be regarded as the most important depends very largely upon the point of view. For those whose interest in entomology is based chiefly upon the systematic side of the science, the numerous publications relating to new species and

new classifications will seem of the most importance, while to those whose interest is on the economic side the discussions of means and methods of combating insect foes and encouraging insect allies will appeal more strongly. To the general reader, however, the investigations into the psychology and habits of insects and their relation to man's comfort will prove especially attractive. Most of the work along these lines has been done in connection with either ants or mosquitoes, and many interesting facts and conclusions have been recorded. Students of ants seem to be coming more and more unanimously to the opinion that the intelligence of these insects has been greatly overestimated and that acts of intelligence are really exceptional, their actions being almost entirely instinctive. Among many writers on these questions, Prof. William M. Wheeler, of the University of Texas, is entitled to special mention because of the large amount of work he has done in ascertaining the facts in the life-histories of our American ants. One old story illustrative of ant intelligence has received its quietus from him, and that is the one in which certain Texan ants were reported actually to sow and harvest the seeds of certain grasses. Wheeler has demonstrated that these ants do not intentionally do anything of the kind, and he aptly says there is no more reason for attributing cultivation of these grasses to the ants, than there would be for attributing peach-culture to a cook who threw out peach stones on a dump, where they subsequently sprang up. The nesting habits of numerous species of ants, and their polymorphism, have been recounted in numerous papers by Wheeler, Brues, Heath, and others.

The work upon the mosquito problem in 1902 was continued along lines similar to that of previous years. In West Africa the campaign against the pest went on under Major Ross, who believes that the first law for tropical sanitation is *No stagnant water!* There is nothing especially important to report from that field. In America, the chief fields of effort were in New Jersey and on the north shore of Long Island. The report on the work done along the latter water-front was published early in the summer, and is especially notable because it includes important reports by such well-known scientists as Prof. Nathaniel S. Shaler, of Harvard, and Prof. Charles B. Davenport, of the University of Chicago. While the systematic entomology of the report appears to be open to criticism because of a failure to distinguish between the different species of mosquito, on the whole this pamphlet is a most valuable record of progress and will be of use wherever the systematic elimination of mosquitoes is to be undertaken. In New Jersey, the State entomologist, Prof. John B. Smith, attempted to secure the passage of a bill by the legislature authorizing the State Agricultural Station to expend $10,000 in investigating the mosquitoes and the best methods of lessening their numbers. Strangely enough the bill met with much opposition and was not passed until the closing days of the session. But no appropriation was made. The governor, however, assigned the sum of $1000 from an emergency fund under his control, with the aid of which Professor Smith investigated the conditions that favor the transmission of malaria in certain districts, the food habits of vertebrates inhabiting mosquito-breeding waters, the effects of poisons on mosquito larvæ, and a preliminary survey of the salt marsh region. It is greatly to be hoped that the next legislature will provide adequate means for the proper prosecution of the work.

Before passing on to a brief survey of the year's most important entomological literature, it may be of interest to record the fact that several large collections of insects changed hands during 1902. Thus we find that the Carnegie Museum in Pittsburg, Pa., secured the Engel collection of the lepidoptera of western Pennsylvania, which contains about 12,000 unusually well preserved specimens, representing nearly 2000 species, while the University of Chicago purchased the Ackhurst collection of Brooklyn, which contains some 50,000 specimens of insects.

Literature.—As is usual in entomological literature, systematic monographs had in 1902 the most conspicuous place. Of these the largest and most important appeared early in the year from the press of the British Museum and is called *A Monograph of the Culicidæ of the World.* The author is F. W. Theobald. This work consists of three volumes, of which the last is entirely colored plates; there are nearly 850 pages of letter-press. Owing to the present great interest in mosquitoes the appearance of this monograph is most timely and it will doubtless prove of great use. A most important and practical book dealing with the mosquito question is Maj. Ronald Ross's *Mosquito Brigades and How to Organize Them.* Although a volume of only 98 pages, it is full of valuable information, as shown by some titles of sections chosen at random; "How to Raise Funds," "Organization of the Brigade," "Destruction of Larvæ." Another most important systematic monograph is W. L. Distant's *Rhynchota; Heteroptera* in Blanford's *Fauna of British India,* a volume of nearly 500 pages and yet dealing with only three of the eleven families of Rhynchota known to occur in India. A somewhat smaller but equally important paper is on *The Tettigidæ of North America,* a volume of 188 pages, by Dr. J. L. Hancock. The author recognizes nearly 90 species of grasshoppers of that

family of which rather more than half occur in the United States. In the serial publication *Fauna Arctica*, two numbers appeared in 1902 relating to insects; one by C. Schæffer on the *Collembola*, and the other by A. Pagenstecher on the *Lepidoptera*. The former includes about 80 species, the latter nearly 1000. Among popular books the most important is *Injurious and Useful Insects*, an introduction to economic entomology, by the well-known English entomologist L. C. Miall. This is a volume of over 250 pages with more than 100 illustrations, and although primarily intended for English students, there is much in it to interest and instruct Americans.

Organization.—The Association of Economic Entomologists held two meetings in 1902 owing to the midwinter meeting of the American Association for the Advancement of Science. The first meeting was held at Pittsburg, Pa., June 27-28, in connection with the summer meeting of the American Association. Some fourteen papers were presented, of which five dealt with the San José scale, and four with insecticides. Officers for the ensuing year were elected and the meeting adjourned to meet in Washington, D. C., during convocation week (Christmas holidays). During the Washington meetings steps were taken toward the reorganization of an American Entomological Club.

EPILEPSY. Statistics concerning the length of life in this disease have been collected by Dr. J. Carton, of Paris. Nearly five hundred cases were studied. The author found that from five to ten years, 11.9 per cent. die; from ten to fifteen years, 14.3 per cent.; from fifteen to twenty years, 22.4 per cent.; from twenty to twenty-five years, 9.6 per cent.; from twenty-five to forty-five years, 6.4 per cent. Below five and above forty-five there were very few deaths. The average age of death was twenty-five years and two months. Nearly a third died of severe or prolonged convulsions, a little over a third died of pulmonary troubles, such as tuberculosis and pneumonia; and a small proportion of deaths were due to asphyxia or injuries sustained in a fit. The treatment of this disease, as is well known, has always been unsatisfactory, and has consisted, as far as medicine is concerned, in the administration of the bromides. In order to intensify their sedative effect, and to create an artificial demand for the bromides, or "salt hunger," the so-called "bromide-diet" has been adopted in some institutions. This consists in the withdrawal of common salt and meat from the dietary, and the substitution of articles deficient in salt. By this means much larger doses of the bromides are tolerated. In connection with these measures Dr. M. Lion has given cerebrine or opocerebrine with remarkable success. Chronic epileptics of the worst type were benefited and their irritability and criminal propensities allayed. See CEREBRINE.

EPISCOPAL CHURCH. See PROTESTANT EPISCOPAL CHURCH.

EPISCOPAL CHURCH, REFORMED. See REFORMED EPISCOPAL CHURCH.

EPWORTH LEAGUE, a society in the Methodist Episcopal Church, organized in 1889 and officially recognized by the General Conference of 1892, the object of which is to promote spiritual development, especially among the young people of the church. Its enrollment now includes 21,366 senior chapters and 8082 junior chapters, 202 affiliated Christian Endeavor societies, and 100 junior Christian Endeavor societies. During 1902, 753 senior and 634 junior chapters were chartered. International conferences have been held every two years since 1893; that of 1903 will meet in Detroit, Mich. The official organ of the Epworth League, the *Epworth Herald*, edited by Dr. J. F. Berry, was first published in 1890. President, Bishop I. W. Joyce, D.D.; general secretary, Rev. J. F. Berry, D.D.; general treasurer, R. S. Copeland, M.D.; central office, 57 Washington Street, Chicago, Ill.

EPWORTH LEAGUE OF THE M. E. CHURCH, SOUTH, is similar in purpose and organization to that of the northern church. It was established in 1891 in Memphis, Tenn., and has, according to the latest statistics available, 115,099 members enrolled in 3234 chapters. Its headquarters are in Nashville, Tenn., and the official organ is the *Epworth Era*. President, Bishop A. W. Candler; general secretary, Rev. H. M. Du Bose, D.D., Nashville, Tenn.

ERITREA, or ERYTHREA, an Italian colony on the western coast of the Red Sea, extending from the Egyptian Soudan to French Somaliland, has an estimated area of 88,500 square miles and an estimated population, which is largely nomadic, of 450,000. There were enumerated in 1899 327,502 natives and 2014 Europeans. The colony is administered by a governor, resident at Massawah, the chief town and port. For the fiscal year 1900 the estimated revenue and expenditure were 2,456,700 lire and 10,587,500 lire respectively; for 1901, 2,299,700 lire and 10,430,500 lire. (The lire is worth 19.3 cents.) Deficits are made up by Italy. The most important industry is the raising of cattle and other live-stock. The imports (by land and sea) and exports of Massawah in 1899 were valued at 9,071,391 lire and 1,628,154 lire respectively; in 1900, 9,376,543 and 2,745,470 respectively.

On May 15, 1902, Italy, Great Britain, and Abyssinia agreed to a modification of the boundary between Eritrea and Abyssinia and the Egyptian Soudan. On May

19 the annexation of Raheita to Eritrea was announced. This was brought about by disturbances caused by the sultan of Raheita. For a number of years the district had been under the protection of the Italian government. For an account of Italy's retaliation in 1902 for the piracies off Massawah, see ARABIA (paragraph Red Sea Piracies).

ESCOBEDO, MARIANO, a Mexican revolutionary, active in resisting the Empire of Napoleon III. in Mexico, died May 22, 1902. He was born in Galeana, Nueva Leon, January 12, 1827, and early distinguished himself by his services as a guerrilla leader against the Americans when General Taylor invaded Mexico. He came into notice again as a revolutionary leader in 1854, fighting for the Liberals against Miramon and in behalf of Juarez, who was eventually successful and became the head of the government. By this time he had attained the rank of brigadier-general. His next notable services were in behalf of the republican government when Napoleon III. interposed in Mexican affairs in 1861 with the object of making that country a dependency and an American outpost of France. Escobedo took part in several actions against the French, but, after Maximilian was made emperor in 1864 retired to Texas and recruited a mixed army at the head of which he returned in 1865. He defeated the emperor's forces at San Jacinto, and besieged and captured the heights of San Gregorio, taking prisoner Maximilian (May 14, 1867), who was afterwards condemned to death and executed. He further aided Juarez in suppressing a revolutionary movement, but, after the triumph of the insurrection under Diaz, he went to New York City. After again returning to his native country and making an abortive attempt to overthrow Diaz, he was finally given an office by the government, which he held until 1883, then retiring into private life.

EUPHRATES VALLEY RAILWAY. See TURKEY (paragraph Bagdad Railway).

EVANGELICAL ASSOCIATION, popularly called the German Methodist Church, was founded by Jacob Albright in 1800. Statistics for 1902 indicate an increase in membership over the preceding year of 2731, the denomination now having 122,667 communicants, with 1100 ministers in active service, and 1860 churches. The aggregate value of church property is $6,416,934. There are conferences of the Evangelical Association in the United States, and in Canada, Germany, Switzerland, and Japan. Its educational interests are represented by five institutions. The publishing house of the denomination, in Cleveland, O., issues a number of periodicals, both English and German, among which the *Evangelical Messenger,* established in 1848, is well known. The Young People's Alliance has a large membership and is one of the most flourishing institutions of the church. The Evangelical Association was among those churches named in the appeal for federation issued by members of the United Brethren in Christ (*q.v.*) In 1903 will be held the next general conference which has met regularly since 1843 in quadrennial sessions. See UNITED EVANGELICAL CHURCH.

EVANS, HENRY CLAY, retired in 1902 from the position of commissioner of pensions, which he had held since 1897, and was at once appointed by President Roosevelt to succeed the late William McKinley Osborne as consul-general at London. He was born in Juniata County, Penn., June 18, 1843, and removed with his parents to Wisconsin, where he received an academic education. He served in the Forty-first Wisconsin Volunteer Infantry during the Civil War, and at its close remained in the South, establishing himself at Chattanooga, Tenn., in the manufacture of railway cars. He became prominent in municipal affairs in Chattanooga, and was twice mayor. In 1888 he was elected as a Republican to Congress, before the end of his term was appointed assistant postmaster-general, and served until after Cleveland's inauguration in 1893. In November, 1894, he was elected governor on the face of the returns, but a recount by the Democratic legislature as a result of certain alleged irregularities, resulted in his rejection by a strict party vote. He was a prominent candidate for the Republican nomination for Vice-President in 1896, and received next to Garret A. Hobart the largest number of ballots in the convention. In 1897 he was appointed commissioner of pensions by President McKinley. His business-like and judicious administration, and his refusal to recommend the payment of pensions without absolute proofs, aroused the hostility of the professional pension-attorneys and claim-agents, who succeeded in making a large number of the Grand Army veterans believe that the commissioner was opposed to all pension legislation. In spite of continued attacks from various veteran organizations, however, Commissioner Evans remained in office until 1902, when, feeling that his usefulness was impaired by these attacks, and that he was a drag on the administration, he asked to be relieved.

EXPERIMENTAL PSYCHOLOGY. See PSYCHOLOGY, EXPERIMENTAL.

EXPERIMENT STATIONS. See AGRICULTURE and ZOOLOGICAL EXPEDITIONS AND STATIONS.

FAIRCHILD, JAMES HARRIS, American educator, died March 19, 1902, at Oberlin, O. He was born November 25, 1817, in Stockbridge, Mass., and in 1834, as a member of the first freshman class of Oberlin College, entered upon his relations with that institution, which as student, teacher, and president, were to continue for sixty-three years. He graduated in 1838, completed the theological course in 1841, in the following year was appointed professor of Latin and Greek, in 1847 became professor of mathematics and natural philosophy, in 1858 was elected associate professor of theology and moral philosophy, and in 1867 was chosen president of the college. Although he retired from the presidency in 1889, he continued to conduct courses in the college and in the theological seminary until 1897. He received the degrees of D.D. and LL.D. from Oberlin, and published *Moral Philosophy; Needed Phases of Christianity; Elements of Theology;* and *Woman's Right to the Ballot.*

FALCONIO, DIOMEDE, apostolic delegate to the United States, in succession to Cardinal Martinelli, assumed the duties of his new office at Washington, D. C., November 20, 1902. He was born in 1842 at Prescocostanza, in Abruzzi, Italy, and at the age of eighteen entered the order of St. Francis. Sent to the United States in 1865, in the following year he was ordained priest at Buffalo, N. Y., and from that time was entrusted with responsible positions in his order. In 1892 he was appointed bishop of Lacedonia, Italy, and three years later archbishop of the united sees of Arcadenza and Matera. In 1899 he was appointed Papal delegate to Canada.

FARLEY, JOHN MURPHY, who, in 1902, succeeded Archbishop Corrigan as primate of the Roman Catholic diocese of New York, was born April 20, 1842, at Newton Hamilton, Ireland. He studied in the United States and at the American College at Rome, where he was ordained priest in 1870. For the two following years he was assistant rector at New Brighton, Staten Island, N. Y., after which he was secretary to Archbishop McCloskey. In 1884 he became private chamberlain and secretary to the Pope. His connection with the archdiocese of New York began in 1891, when he was appointed vicar-general, and four years later he became assistant bishop upon the creation of that offce. In 1895 he was also made titular bishop of Zeugma. Upon the death of Archbishop Corrigan, he was the unanimous choice for successor among the clergy of the diocese and the bishops and archbishops of the United States.

FARM ANIMALS. See AGRICULTURE and DAIRYING.

FARMERS' INSTITUTES. See AGRICULTURE (paragraph Agricultural Education).

FAYE, HERVÉ AUGUSTE ETIENNE ALBANS, a French astronomer, the discoverer of the comet which now bears his name, died September 4, 1902. He was born October 1, 1814, at St. Benoit-du-Sault, Indre, France, and in 1832 entered the Ecole Polytechnique, but gave up the course to go into business, which in turn he abandoned to enter the observatory of Paris, as a student, in 1836. In November, 1843, he made his great discovery, for which the Academy awarded him the prix Lalande and elected him a member in 1847. In 1848 he was instructor in geodesy at the Ecole Polytechnique, and in 1854 professor of astronomy in the faculty of sciences at Nancy. He became a member of the Bureau des Longitudes in 1862, professor of astronomy at the Ecole Polytechnique in 1873, and president of the Bureau des Longitudes in 1876. He was chosen to the Legion of Honor in 1843 and became a grand officer in 1889. Among his works may be mentioned: *Parallaxe d'une étoile anonyme de la Grande Ourse* (1846); *Mémoire sur l'anneau de Saturne* (1848); *Sur les Cyclones solaires* (1873); *Sur la Formation des nuages et de la grêle* (1875); *Sur l'Origine du Monde* (1884), in which a system of cosmogony wholly different from that of Laplace is developed.

FEDERATED MALAY STATES, occupying a part of the southern Malay Peninsula, are under the protection of Great Britain and administered under the advice of a British resident-general. The federation comprises Perak, Selangor, Pehang, and Negri Sembilan, the latter itself a confederation of nine small inland states. The aggregate area is about 26,500 square miles, and the population, which was 418,509 in 1891, had increased to 676,138 in 1901, and was growing rapidly, due principally to the large influx of Chinese. Each state is governed by its native sultan, advised by a British resident. There is a British resident-general for the federation subject to the high commissioner, who is the governor-general of the Straits Settlements.

The revenue, which amounted to only about 1,000,000 dollars in 1874, when the states were brought under British control, amounted to 15,609,807 dollars in 1900, and to the unprecedented amount of 17,500,000 dollars in 1901. The expenditure amounted to 12,728,900 dollars in 1900, and almost equaled the revenue in 1901; but in the latter year it was exceptional, as it included two years' expenditure under certain heads. The largest source of revenue is the export duty on tin,

which in 1900 amounted to over 7,000,000 dollars. The British dollar is equal in value to the Mexican.

The States are in a prosperous condition commercially and industrially. The total commerce increased from 98,750,000 dollars in 1900 to over 102,500,000 dollars in 1901, over 63,000,000 dollars of which represented exports. Tin, by far the most important product, was exported in 1901 to the value of more than 53,500,000 dollars. The export of Liberian coffee, the cultivation of which is being rapidly extended, amounted to 3000 tons. Rice, tapioca, sugar, and spices are also raised for export. In 1901 there were 236 miles of railway in operation, and about 100 miles additional under construction. A new line is projected to connect Pehang, on the east coast, with the other states.

FEDERATION OF LABOR, AMERICAN, was organized in November, 1881, to aid the laboring classes "by rendering employment and the means of subsistence less precarious by securing for the workingmen an equitable share of the fruits of his toil." The officers are: President, Samuel Gompers, Washington, D. C.; secretary, Frank Morrison, Washington, D. C.; treasurer, John B. Lennon, Bloomington, Ill. The headquarters are at 423 G Street N. W., Washington, D. C., where the official organ, the *American Federationist,* is published. The American Federation of Labor is now the strongest and most aggressive organization of the trades unions in the United States and Canada. During the year 1902 six new national unions affiliated with the Federation were formed. The total number of charters for the year were as follows: National and international unions, 14; State branches, 6; central labor unions, 127; and local trade and federal labor unions, 877, making a total of 1024 new charters issued in 1902. At the end of the year 1902 there were affiliated with the American Federation, 99 national and international unions, with about 14,000 local unions under their authority; 27 State federations; 406 city central bodies, and 1378 local organizations directly united with the National American Federation. During the year 3500 new local unions were organized, with a membership of about 300,000. The total membership at the end of the year was put at over 2,000,000, but only 1,025,300 paid the per capita tax. The great success of the Federation, as compared with other national or international organizations of united laborers, seems to be due to its system of organization. It aims to give a distinct organization to each particular trade, beginning with the local trade union, and extending, as need arises, into State, national, and even international (Canada and the United States) organizations. Thus is utilized a well recognized principle of association, viz., the alliance of men having common interests and aims. This differs radically from the principle upon which was founded, and went to pieces, the old Knights of Labor. The latter organization worked on the principle that all laborers of all trades have identical interests. Local unions were therefore made up of all sorts of trades. Consequently there were constant strifes and discords in the local unions. The American Federation of Labor, however, uses this principle of union locally, where it is impracticable to organize the different trades separately. Two hundred and seventy-nine of these local federal labor unions, as they are called, were organized in 1902. They usually contain a preponderance of workmen belonging to the less skilled trades. As soon as a sufficient number of workers following the same employment is found, they are required to form a local trade union, having an affiliation with the State, national, or international union of that trade where such organizations exist. The plan is truly federal. The city central labor unions are organized for the purpose of bringing the different trade unions of the city together for united action in affairs of a local character. The executive head of the Federation has little real authority, and the policy of the local unions is mostly determined by itself or by the city central body.

The American Federation of Labor in 1902 steadily and vigorously opposed the demand for compulsory incorporation of trade unions, in order that they may be held legally responsible for the faithful carrying out of agreements. The unions deny that they violate agreements and object to the law on the ground that judges are likely to be prejudiced against labor and will interpret the law to injure the unions. Several times during the year trade unions violated contracts, causing severe loss to employers and others, and it seems necessary and right that the unions should be held to the same measure of responsibility as are the employers of labor. As a result of the coal strike, the question of compulsory arbitration has come more prominently before the public than ever before. Heretofore the labor unions have been solidly opposed to anything of this nature. Because of the attitude of the local operators, many labor union men now favor compulsory arbitration, although President Gompers in his annual report condemns it. The proposition was brought before the Canadian Trade and Labor Congress, where it was overwhelmingly defeated. In Porto Rico eight organizers of the American Federation of Labor were arrested, tried, and condemned to imprisonment varying from three months to four years and three months, on the charge of "conspiracy to

raise the price of labor." The case was appealed to the highest court in Porto Rico, where the decision of the lower court was reversed. On the recommendation of Governor Hunt, the first Porto Rican legislature meeting under authority of the United States revised the old Spanish code so as to permit organizations of labor formed to regulate wages, hours, etc. A number of bitter disputes between rival trade unions occurred, regarding the question of jurisdiction. The painters' union and the paper hangers' union of Washington, D. C., had a dispute as to which union should have charge of certain work in repairing the White House. After an annoying delay the matter was patched up. Two rival painters' unions in New York City got into a dispute which led to a boycott and strike of all the workmen engaged in building Mr. Vanderbilt's house, because one of the unions succeeded in getting the Building Trades Council to pronounce the other union "unfair." The brewers' union claims jurisdiction over the coopers employed by the brewing companies, which claim is vigorously opposed by the coopers' union. President Gompers thinks this internecine jealousy is the most threatening danger confronting the Federation to-day. These disputes and the open rebellion against the central authority, as in the case of the truckmen and the city central body of Chicago, seem to indicate that there is little real solidarity among the different trades, and that the federal principle, although undoubtedly superior to the principle of mixed unions, is an artificial attempt to harmonize the inherently inharmonious.

The American Federation of Labor actively pushed the child labor legislation in the Southern States, and succeeded in getting a measure passed in Kentucky, prohibiting the employment of children under fourteen years old in mills. Kansas passed a law providing for the appointment of a labor inspector at a salary of $1200, and two assistants at $1000 each. These officials are under the commissioner of agriculture. The same law provides for a fine of from $25 to $250 for the employment of children under fourteen years of age in any factory, mine, or workshop. Most of the children employed in southern mills are white, and the argument is used that unless child labor be prohibited, the whites will soon be the illiterates, because the negro children attend school while the white children work in the mills. The Federation made strong efforts to secure eight-hour laws in Congress and in many of the State legislatures. The organization wields a powerful political influence, because of its large voting strength, and is generally successful in getting such legislation as it asks for.

Labor unions have persistently fought the productive employment of convicts until now few States let out convicts to contractors or employ them in making goods to be sold in competition with the products of free labor. In January, 1902, the Illinois State Federation of Labor agreed with the governor and state prison commissioners and wardens, to approve the present system in Illinois, which allows of contract prison labor. No new contracts are to be made, however, until another legislature acts upon the matter. See CHILD LABOR, STRIKES, and TRADE UNIONS.

FEEHAN, PATRICK AUGUSTINE, Roman Catholic archbishop of Chicago, died in that city, July 12, 1902. He was born in Tipperary, Ireland, August 28, 1829, and was educated first at the College of Castle Knock, near Dublin, and then at Maynooth College, Kildare. In 1852 he came to the United States, was made president of the Carondelet Theological Seminary in 1854, became rector of the Church of the Immaculate Conception in St. Louis in 1859, and in 1865 succeeded Bishop Whelen as bishop of Nashville, Tenn. During the latter incumbency, which extended through a period of fifteen years, Bishop Feehan effected a complete reorganization of his diocese, which had greatly suffered from the Civil War, and raised to a very high grade the educational efficiency of its parochial schools. He was also the founder of the fraternal order Catholic Knights of America, established in 1877, the first insurance organization founded for Catholics alone. In 1880 he was consecrated archbishop of Chicago.

FELDSPAR. See MINERAL PRODUCTION.

FENCING maintained, in 1902, a very active season, particularly among the colleges, where it has become a leading sport. The championship tournament of the Intercollegiate Fencing Association, held in New York City, March 28-29, with foils, was won by the West Point team (Strong, Breckinridge, and Nichols) with 40 bouts won to 14 lost, the other teams finishing as follows: Columbia, 35, 19; Annapolis, 34, 20; Cornell, 32, 22; Harvard, 25, 29; Yale, 15, 39; Pennsylvania, 8, 46. The individual championship was a tie between Strong (West Point), Whitten (Annapolis), and Clark (Columbia), with 15 out of 18 bouts won, and was not fenced off. In dual meets Cornell defeated Pennsylvania 8—1 and Columbia 7—2, and was beaten by West Point 6—3. Yale defeated Columbia 7—2, and was beaten by Harvard 5—4, and by West Point 4—2. In addition to the victories over Cornell and Yale, West Point defeated Harvard 9—0 and Pennsylvania 7—2. The Amateur Fencers' League contests, held at the New York Athletic Club, April 25-26, resulted

as follows: Foils—J. P. Parker, Boston, won in a deciding bout with C. G. Bothner, New York, after a tie; sabres—A. V. Z. Post, New York, first, with 7 victories and no defeats; dueling swords—C. Tathem, New York, 7 victories and 1 defeat. The senior championship at foils was won by the Fencers' Club of New York, defeating the New York Athletic Club team, 5—3. The junior championship went to Columbia, who defeated Yale 5—4 for the Newbold Morris trophy. C. W. Davis, New York, won the junior championship at open foils.

FIJI, a group of about 225 islands in the southern Pacific, is a British crown colony. The total area of the group, including Rotumah, is 8045 square miles, and the population of the eighty inhabited islands (1901) 117,870, of whom 2447 were Europeans, 17,105 East Indians, and 94,397 Fijians. Suva, the capital, with a European population of 1073, is located on Viti Levu, the largest island, which has an area of 4250 square miles, about that of Jamaica. Education is largely in the hands of the Wesleyan and Roman Catholic missions, but the government supports an industrial and technical school and two public schools at Suva and Leouka. The colony is administered by a governor, who is also British high commissioner for the western Pacific. In this office Sir Henry Moore Jackson succeeded Sir G. T. M. O'Brien in 1902. He is assisted by an executive council and a legislative council consisting of official and appointed members. The colony is divided into seventeen provinces, in some of which there are European commissioners; in others the native chiefs exercise control.

The revenue in 1901 amounted to £113,853 and the expenditure to £104,973. There is a public debt of £196,095. The native taxes are paid in produce and sold by the government. Vegetation is luxuriant, and includes bread-fruit, bananas, plantain, peanuts, yams, cocoanuts, sugar-cane, tea, cotton, maize, tobacco, and arrowroot. The imports (1901) were valued at £343,636; and the exports, largely sugar (valued at £393,987 in 1900), pearl shells, peanuts, green fruit, maize, copra, and cocoanut-oil, amounted to £541,258, of which £472,456 went to British colonies.

FILTRATION. See WATER PURIFICATION.

FINANCE. See the articles on the United States, the States of the United States, and foreign countries; also BANKS—BANKING, and the following article.

FINANCIAL REVIEW OF THE YEAR. The year 1902 surpassed all former years in the volume of business done so far as the United States is concerned. The output of iron and steel, which is probably the best indicator of trade conditions, far surpassed any previous record. Furthermore, demand ran ahead of supply so that the extraordinary home production was insufficient, and large importations had to be made. In all lines the same activity prevailed. The following table compares by months the aggregate transactions on the New York Stock Exchange:

MONTH.	Sales of Stock (Shares).		All Classes of Bonds (Par Value).	
	1902	1901	1902	1901
January	14,733,391	30,207,603	$94,030,500	$94,983,450
February	12,950,699	21,881,389	84,192,500	103,741,300
March	11,954,672	27,001,677	66,952,200	132,401,020
April	26,579,732	41,688,897	114,884,900	115,875,500
May	13,485,777	35,199,736	63,108,500	110,357,400
June	7,813,049	19,819,131	64,153,800	79,858,050
July	16,317,957	15,920,898	71,962,200	49,477,000
August	14,317,393	10,771,312	53,587,300	36,821,700
September	20,953,087	14,030,762	94,626,950	44,684,100
October	16,348,369	14,023,147	68,653,000	64,954,600
November	17,117,313	18,360,459	54,511,700	90,895,500
December	15,719,742	16,672,343	60,641,600	75,355,300
Total	188,321,181	265,577,354	$891,305,150	$999,404,920

The Stock Market.—The year opened with no such wild speculation as characterized January, 1901. The bad crops of 1901, the embarrassment of the Everett-Moore syndicate of trolley and telephone promoters, and the failures of the National Asphalt Company and the Crude Rubber Company, all tended to make investors cautious. Stock sales for January were less than one-half the sales in the same month in 1901, and prices tended downward most of the month. The continued activity in trade and the full report of the United States Steel Corporation checked the waning confidence. The suit against the Northern Securities Company brought by the State of Minnesota disturbed the market considerably, and when, on February 19, President Roosevelt announced his determination to proceed against the company, a severe decline in stocks resulted. Through March the trend of prices was upward, and in April speculation became reckless. The Louisville and Nashville Railroad management issued 50,000 shares of new stock, at the same time selling themselves short. John W. Gates took advantage of the opportunity to

corner the stock; but to prevent a panic, with all the consequent evils, the whole matter, including the shares acquired, was turned over to J. P. Morgan and Company for settlement. Shares were borrowed by the shorts to cover, and the threatened crash was averted. It was persistently rumored that Morgan intended to incorporate the Louisville and Nashville with the Southern Railway, thus increasing the extent of the Morgan railway system. In September, however, the Louisville and Nashville was purchased by the Atlantic Coast Line Railroad. A great steamship combination was arranged in April by J. P. Morgan, embracing most of the lines operating in the North Atlantic, viz., the White Star, Dominion, American and Red Star, Leyland, and the Atlantic Transport Company. Purchase was not completed until December. The combination was capitalized at $170,000,000; stock, $120,000,000, and bonds, $50,000,000. The transaction aroused much hostile criticism in England, where it was thought it might endanger British supremacy on the seas. On the last day of April, a sharp break occurred in International Power stock, which was quickly followed by a complete collapse of all the Webb-Meyer specialties, though Dr. William Seward Webb denied the existence of a Webb-Meyer syndicate. The properties involved and the fall in the market prices during May were as follows: Dominion Securities Company, from 118¼ to 16; Hackensack Meadows Company, from 79½ to 8; Storage Power, from 10¼ to 3½, and North American Lumber and Pulp Company, from 39¼ to 5. A report on these properties, made by an investigating committee, revealed a barren array of assets. A credulous public willing to be victimized by unscrupulous manipulators working in the dark was responsible for this working up of worthless securities. Nothing could more strongly emphasize the absolute necessity for greater publicity in the accounting of all stock companies and corporations. The strike of the anthracite coal miners aggravated the strain on the stock market, and some further decline occurred, but the market held up remarkably well, and in July considerable buoyancy prevailed. During July and August a contest for the control of the Colorado Fuel and Iron Company was waged by John W. Gates against the Osgood management. In spite of all disturbances prices continued upward. In September, however, there was extensive liquidation because of the high money rates and the calling in of loans by the banks, resulting in the severest break in prices since the panic of May, 1901. Owing to the relief measures proposed by the secretary of the Treasury, confidence was restored and the following day, September 30, the market almost entirely recovered. During October and November stocks ruled generally low, with a slight recovery at the end of the latter month. The Venezuelan trouble assumed a serious aspect, money rates soared upwards, while stocks rapidly fell. On the 12th and 13th of December many stocks reached the lowest points for the year, and a semi-panic ensued. No failures occurred, however, showing a sound condition of business. The formation of the money pool and the clearing of the South American war clouds restored confidence, and at the close of the year stocks were higher than before the depression. Everything indicates a healthy condition of affairs for the year 1903. The range of prices of leading stocks on the New York Stock Exchange in 1902 was as follows:

RANGE OF LEADING STOCKS IN 1902.

Stocks.	Opening.	Lowest.	Highest.	Closing.
TRUNK LINE RAILROADS.				
Baltimore and Ohio	107½	92⅝ Dec. 12	118½ Sept. 10	99⅞
Boston and Albany	261¼	256½ Dec. 8	266 May 9	259
Canada Southern	86½	71 Dec. 24	97 May 22	76
Cl., Cin., Chic. and St. L.	98¼	93 Nov. 10	108⅝ Aug. 8	96⅝
Erie	43¾	28⅝ Dec. 12	44⅝ Jan. 2	38⅝
N. Y. Cent. and Hudson	167⅝	147 Nov. 14	168⅞ Jan. 2	151
N. Y., Chic. and St. Louis	51	40 Nov. 14	57⅝ Aug. 8	43¾
Pennsylvania	150⅝	147 Jan. 14	170 Sept. 4	155⅞
Wabash	22⅝	21¾ Jan. 14	38⅝ Sept. 10	30⅝
COAL ROADS.				
Central New Jersey	195	165 Nov. 20	198 Jan. 6	175
Del., Lack. and Western	260	231 Nov. 8	297 Feb. 4	262
Del. and Hudson	179¼	153½ Nov. 14	184½ Jan. 7	172½
Lehigh Valley*	37⅞	29¼ Nov. 14	38½ Dec. 30	38¼
N. Y., Ont. and Western	35⅝	25¼ Dec. 12	37⅝ Sept. 8	32
Reading	57½	52¼ Mar. 10	78½ Sept. 3	67⅝
WESTERN AND PACIFIC.				
Canadian Pacific	113½	112¼ Jan. 28	145¼ Sept. 3	132½
Chicago and Alton	35¼	29½ Dec. 15	45⅝ July 16	34¾
Chic. Great Western	24¼	22 Dec. 12	35 Aug. 20	28
Chic., Mil. and St. Paul	165½	160½ Jan. 27	198⅝ Sept. 20	178⅝
Chic. and Northwestern	207	204½ Jan. 14	271 Apr. 29	219¼
Chic., R. I. and Pacific	154	152 Jan. 15	206 Sept. 22	180

RAILROADS.	Opening.	Lowest.	Highest.	Closing.
WESTERN AND PACIFIC.				
Col. Southern	15	14⅛ Jan. 15	35¾ July 17	28½
Denver and Rio Grande	45½	35⅛ Dec. 15	51¾ Aug. 21	41
Great Northern pref	184¾	181½ Mar. 5	203 Dec. 31	203
Illinois Central	139¾	137 Jan. 14	173½ Aug. 27	146⅝
Minn., St. Paul and S. S. M.	36½	36½ Jan. 2	84 Nov. 1	76
Rock Island Co	(a) 47½	33½ Dec. 12	50½ Dec. 31	49¼
Southern Pacific Co	60⅛	56 Dec. 12	81¼ Sept. 10	65⅛
Union Pacific	103⅝	98½ Dec. 12	113¼ Aug. 26	100½
SOUTHWESTERN ROADS.				
Atchison, Top. and Santa Fe	80½	74¼ Jan. 27	96⅝ Sept. 9	84⅛
Mo., Kan. and Texas	26¼	22½ Dec. 12	35⅝ Sept. 10	27⅛
Missouri Pacific	106	96¾ Mar. 11	125½ Sept. 10	110⅝
St. Louis and San Fran	56	55¾ Jan. 2	85½ July 31	74⅛
St. Louis Southwestern	27¾	24½ Dec. 12	39 Aug. 13	27¾
Texas and Pacific	39¾	37 Dec. 15	54¾ Sept. 3	40⅝
SOUTHERN ROADS.				
Chesapeake and Ohio	47¼	42⅝ Dec. 12	57½ Sept. 3	48⅝
Louisville and Nashville	107	102½ Jan. 27	159½ Aug. 20	128
Norfolk and Western	58	55 Jan. 14	80¾ Oct. 17	73⅝
Southern R'y	34¼	(b) 28 Dec. 12	41⅝ Aug. 21	(b) 34⅛
Southern R'y pref	94⅛	(b) 89¾ Dec. 15	98½ Apr. 15	(b) 92½
MISCELLANEOUS.				
Amalgamated Copper	69⅝	53 Nov. 14	79 Feb. 1	63⅞
Amer. Car and Foundry	30¾	28¼ Apr. 11	37⅝ Oct. 3	36
Amer. Cotton Oil	32⅞	30½ Jan. 10	57¾ Apr. 28	45
Amer. Smelt. and Refining	46¼	37 Nov. 28	49⅝ May 26	43
Amer. Sugar	117¼	113 Nov. 11	135½ Mar. 31	128½
Anaconda Copper†	123	80 Dec. 12	146 Feb. 1	96
Brooklyn Rapid Transit	65	54¾ Nov. 14	72⅝ July 21	67½
Colorado Fuel and Iron	88¼	73¾ Aug. 22	110½ Apr. 24	81¼
General Electric	(c) 283	170½ Oct. 13	(c) 334 Apr. 9	183½
International Paper	21	16½ Dec. 12	23⅝ Mar. 20	17¼
Manhattan Elevated	137½	128 Mar. 12	158 Nov. 24	149
Metropolitan Street R'y	162½	135 Oct. 13	174 Feb. 5	140¾
National Lead	16¾	15½ Jan. 18	32 Sept. 26	28⅝
Pacific Mail S. S.	46	37 Nov. 15	49⅝ Mar. 10	39⅞
People's Gas, Light and Coke Co	104	96¼ Jan. 15	109½ Sept. 5	103¾
Pressed Steel Car	41½	39 Jan. 14	63½ Oct. 3	62⅝
Republic Iron and Steel	15⅝	15⅝ Jan. 2	24¾ Sept. 8	20¾
Tenn. Coal, Iron and R'y	64⅝	49½ Dec. 12	74⅝ Apr. 24	60
U. S. Leather	12⅛	10½ Dec. 15	15¼ Sept. 22	12⅝
U. S. Rubber	14¾	14 Jan. 2	19⅝ Oct. 1	17½
U. S. Steel Corp	43¾	29¾ Dec. 12	46¾ Jan. 7	36¼
U. S. Steel Corp. pref	93½	79 Dec. 12	97¾ Jan. 7	86⅞
Western Union Tel	92¾	84¾ July 10	97½ Aug. 26	88½

* Dollars per share. Par value $50. (a) First sale was made Nov. 13. (b) Voting trustee certificates stamped extended. (c) Before payment of 66⅔% stock dividend. † All prices of Anaconda Copper are reduced to a percentage basis in this table.

Banking and Currency.—The depression in the stock market and the tightness of money at the opening of 1902 were relieved by the flow of currency from the interior. The rates on call loans declined as deposits, loans, and surplus reserves increased. In May the break in International Power and the collapse of the Webb-Meyer stocks sent the rates on call loans skyward. The highest rate (25 per cent.) was reached May 5, but some of the largest financial houses, including J. P. Morgan and Company, asked only 6 per cent. Early in July the Chicago corner in corn drained much money from New York, so that rates went up again to 7 per cent. on call loans. Rates declined toward the end of the month, but went up again in August with the beginning of the crop movement from the west. In September the money market looked panicky, necessitating heroic measures of relief by Secretary of the Treasury Shaw. Cash in the sub-treasuries September 1 was $317,734,602, against $290,738,811 on February 1, when Mr. Shaw assumed office, although government deposits in banks had been increased from $112,578,621 to $125,382,170. On the 13th Mr. Shaw asked those national banks holding "free bonds"—i.e., not pledged as security for public deposits or bank circulation—to send their bonds to the treasurer in sums of $50,000 and receive government deposits to the amount of the par value of the bonds. It was estimated that this would release about $4,000,000 of cash from the treasury. He also anticipated the October interest on government bonds to the amount of $4,500,000. All these measures for relief proved insufficient, and on September 20 the New York Clearing House banks showed a deficiency ($1,642,050) in reserves for the first time since November, 1899. Mr. Shaw issued a circular September 25, offering to pay in advance, beginning October 1, the interest maturing on government bonds up to and including July 1, 1903, at a rebate of two-tenths of 1 per cent. a month, the offer to remain open until November 30, 1902. September 26 he gave notice that he would purchase

on or before October 15 at 105 flat, United States 5 per cent. bonds of 1904, of which only $19,410,350 were then outstanding. The price attracted only $25,300 worth of bonds. On September 27, the Clearing House showed surplus reserves of $3,236,625, but on Monday, September 29, call money advanced to 35 per cent. and prices on the Stock Exchange went down with a crash. After the close of business, the secretary announced that he would allow the substitution of bonds other than United States bonds for part of the 2 per cents. held as security for government deposits, taking the same general class of municipal bonds as those permissible as savings bank investments in the several States. Later it was decided to accept the uncontested bonds of any city the debt of which (exclusive of water debts and sinking funds) should be less than 7 per cent. of the assessed valuation of the city. The substitution was allowed only on condition that the United States bonds thus released should be made the basis of new banknote circulation. It was also announced that banks would no longer be required to carry any cash reserve against the government deposits secured by United States bonds, amounting then to $130,000,000, of which $40,000,000 was at New York. The threatened panic was averted, though Mr. Shaw's acts were severely criticised as being unnecessary, illegal, and partial to the Wall street speculators. Nevertheless, cash continued to accumulate in the sub-treasuries, amounting to $324,718.483 on October 1. In order to reduce these cash holdings, Mr. Shaw was obliged to buy bonds extensively. On October 17 a circular was issued announcing that the treasury would purchase the United States 4s of 1925 at 137¾ with interest to date of purchase. Bonds to $8,253,400 face value were immediately turned in to the New York sub-treasury, for which the government paid $11,293,789 in one day. The money market was at once eased. During the month $15,675,250 worth of bonds were purchased for $21,695,311 at the different sub-treasuries. The interest on the public debt due November 1, amounting to $2,160,000, was paid in advance without discount. Government deposits in banks were increased from $133,932,197 to $146,885,013. In these ways cash holdings of the treasury were reduced from $324,718,483, October 1, to $294,466,478, November 1. National bank circulation was greatly increased through the release of United States bonds held as security for government deposits as noted above, the net increase in the amount of banknote currency being $11,940,045. A considerable amount of gold arrived from Australia and the Yukon, so the aggregate additions to the money in circulation amounted to no less than $60,425,341 for October.

The course of the New York money market during 1902 is shown in the following table:

NEW YORK MONEY MARKET (1902).

	Rate of Interest.			Loans.	Deposits.	Surplus Reserves.¶	Excess of Gold Imports (+); Exports (—) (United States).
	Call Loans.	Time, 6 Months.	Commercial Paper, Double Name.				
January....	2 -15	4½-5½	4 -5	$864,236,800 869,942,600	$926,204,100 949,666,800	$7,515,500 25,332,400	—$567,888
February...	2 - 3	4 -4½	4 -	889,531,700 936,757,600	975,997,000 1,019,474,200	12,456,600 26,623,300	—6,968,513
March.....	2¼- 5	4½-4¾	4 -5	904,074,500 938,191,200	965,353,300 1,017,488,300	3,113,300 9,975,900	—1,796,633
April.....	2½- 7	4 -4¾	4 -5	893,394,100 907,223,400	952,774,200 964,618,400	2,649,500 9,461,000	—979,437
May.....	2 -25	4 -5	4¼-4¾	870,483,300 904,162,500	931,751,000 968,189,400	3,461,000 14,301,400	—471,354
June.....	2½- 5	4¼-5	4 -4¾	881,070,400 893,871,800	942,868,600 955,829,400	11,285,500 13,302,300	+3,694,932
July.....	2 - 7	4½-5	4½-5	903,327,300 913,294,500	940,692,900 958,647,500	10,084,700 15,709,200	—6 289,918
August.....	2½- 6	4¾-5½	4½-5	910,040,000 929,148,000	935,998,500 960,246,000	7,126,600 13,738,100	+2,837,883
September.	2 -25	5 -6*	5 -6†	874,181,800 906,374,800	876,519,100 923,398,200	—1,642,000 4,097,000	+4,451,101
October.....	2½-35	6 - *	5½-6†	865,450,800 874,647,900	963,125,800 882,685,300	1,527,300 17,781,400	+9,657,617
November..	2 - 7	5½-6	5½-6	868,217,200 879,826,000	875,706,100 893,791,200	15,786,300 21,339,100	+5,261,412
December...	3 -13	5¾-6	6 - †	875,321,500 881,437,000	865,953,600 879,762,600	6,549,200 9,973,700	—666,476
Excess of gold imports.....							$8,162,726

* Six per cent. plus one per cent. commission. † Nominal rate; commercial paper was practically unsalable. ¶ This is the surplus above the 25 per cent. reserve against deposits, government deposits being included as in the past.

Large payments on account of the shipping combination and the purchase of the Louisville and Nashville Railroad kept money rates high, and when the Venezuelan difficulty became serious the money market again looked panicky. On December 15 call loans were 10 per cent., with every prospect of going higher. It was announced that J. P. Morgan, James Stillman, president of the National City Bank, and George F. Baker, president of the First National Bank, had formed a pool to loan $50,000,000 if it should prove necessary. This quickly cured the money stringency.

Though the volume of mercantile transactions was greater, the bank clearings for 1902 did not come up to the figures for 1901. This was due to the decline in speculation, the aggregate amount of sales on the New York stock market being less by $6,213,520,468 in 1902 compared with 1901. The values of stock market transactions for the first six months of 1902 were less than half those of the corresponding period of 1901.

Considering the shrinkage in Stock Exchange business, the close approach in the amount of bank clearings for 1902 to those of 1901 indicates a great increase in general business activity. The total clearings for 1902, according to the *Financial Review* amounted to $118,118,839,190 as against $118,579,964,282 for 1901, showing a trifling decline of only a small fraction of 1 per cent. The clearings for 1899 and 1900, the largest previously recorded, were only $94,178,089,238 and $86,205,688,683, respectively. Outside of New York the bank clearings increased from $39,152,278,440 in 1901 to $41,790,650,025 in 1902, a growth of 6.7 per cent. The improvement in clearings outside New York extended to all parts of the country except New England, where the falling off was due almost entirely to the decrease in speculation on the Boston Stock Exchange. New York, Boston, and Detroit are the only large cities which show a decrease in bank clearings. The falling off in the last-named city was probably due to the great decline in grain shipments, owing to the short crop of 1901. The following table compares bank clearings by months in the United States during 1901 and 1902:

MONTHLY BANK CLEARINGS.

Month.	Clearings, Total for the United States.			Clearings, Outside New York City.		
	1902	1901	Per Cent. of Increase.	1902	1901	Per Cent. of Increase.
January	$10,665,696,294	$10,720,800,645	— 0.5	$3,736,227,583	$3,319,685,772	+12.5
February	8,363,711,478	8,363,705,615	0	3,014,741,502	2,740,111,090	+10
March	8,892,946,411	10,007,314,918	—11.2	3,386,020,916	3,120,474,186	+ 8.5
1st quarter	$27,922,354,183	$29,091,821,178	— 4	$10,136,990,001	$9,180,271,048	+10.4
April	$10,929,629,706	$12,015,067,403	— 9	$3,576,982,118	$3,378,178,827	+ 5.8
May	10,392,502,321	12,831,374,494	—19	3,586,789,082	3,505,942,069	+ 2.3
June	8,217,167,796	10,109,722,739	—18.7	3,250,010,394	3,248,940,484	+ 0
2d quarter	$29,539,299,823	$34,956,164,636	—15.5	$10,413,781,594	$10,133,061,380	+ 2.8
Six months	$57,461,654,006	$64,047,985,814	—10.3	$20,550,771,595	$19,313,332,428	+ 6.4
July	$10,179,774,277	$9,369,784,498	+ 8.7	$3,586,142,696	$3,287,854,464	+ 9.1
August	8,952,589,432	7,990,538,438	+12	3,135,644,372	3,060,989,568	+ 2.5
September	10,166,919,721	7,971,256,368	+27.5	3,362,840,934	2,924,121,819	+15
3d quarter	$29,299,283,430	$25,331,579,301	+15.6	$10,084,128,002	$9,272,965,851	+ 8.8
Nine months	$86,760,937,436	$89,379,565,118	— 2.9	$30,634,899,597	$28,586,298,279	+ 7.2
October	$11,366,778,676	$9,536,220,591	+19.2	$3,869,933,637	$3,585,703,580	+ 7.9
November	10,096,424,151	9,853,307,246	+ 2.5	3,557,156,510	3,485,179,087	+ 2.1
December	9,894,698,927	9,810,871,327	+0.9	3,728,660,281	3,495,097,494	+ 6.7
4th quarter	$33,157,901,754	$29,200,399,164	+ 7.4	$11,155,750,428	$10,565,980,161	+ 5.6
Year	$118,118,839,190	$118,579,964,282	— 0.4	$41,790,650,025	$39,152,278,440	+ 6.7

Railroads and Internal Commerce (see UNITED STATES, paragraph Domestic Commerce).—The year 1902 was the greatest in the history of railroading, despite the falling off in grain freights because of the short crops in 1901 and the disturbance of all industries caused by the coal strike. The grain receipts at seaboard fell off from 342,935,849 bushels in 1901 to 220,937,121 bushels in 1902. Compared with the record year (1899) the decrease was nearly 210,000,000 bushels. Flour receipts for 1902 were 21,688,882 barrels, compared with 22,528,524 barrels for 1901. A corresponding falling off in grain and flour receipts was manifest at the western shipping points. Live stock deliveries at Chicago aggregated 278,100 carloads in 1902 as against 291,741 carloads in 1901. Shipments of anthracite coal to the seaboard

declined from 42,000,000 tons to about 32,000,000 tons. The diminished quantity of coal shipped was but a small part of the loss due to the coal strike. It curtailed production in every line. Yet the activity in the general industries of the country was so great as to overcome these unfavorable circumstances. The iron and steel trades were especially prosperous. Shipments of iron ore by water from the Lake Superior region amounted to 27,039,169 tons in 1902 as against 20,157,522 tons in 1901. This meant an enormous increase in the amount of bituminous coal hauled by the railroads, in addition to the larger amounts of ore. According to the *Financial Review*, the aggregate earnings of the railroads for 1902 were $1,542,-725,832; for 1901, $1,449,841,005—an increase of $92,884,827 or 6.41 per cent. The enhanced earnings of the roads were largely absorbed by increased expenses, due to higher cost of fuel and supplies. Wages of employees were advanced 10 per cent. by nearly all the roads throughout the country.

The largest gains in gross earnings were made by the Pennsylvania ($17,418,900), the Great Northern ($6,350,357), the Northern Pacific ($5,973,217), the Canadian Pacific ($5,652,697), the Chicago, Burlington and Quincy ($5,195,515), the Southern Pacific ($3,726,283), the Baltimore and Ohio ($3,712,882), and the Louisville and Nashville ($3,692,205). The heaviest decreases were of course sustained by the anthracite coal roads. The decreases were: Lehigh Valley, $3,978,850; Central of New Jersey, $1,675,837; Reading, $1,383,917; New York, Ontario and Western, $806,858; New York, Susquehanna and Western, $671,615. Only four other roads report a decline in earnings for the twelve months of 1902. These are: Texas and Pacific, $564,063; New York, Chicago and St. Louis, $345,975; Chesapeake and Ohio, $259,697; and Texas Central, $125,297. The aggregate decrease for these nine roads was $9,812,109 for the year. The gross earnings of railroads by groups were as follows in 1901 and 1902:

GROSS EARNINGS OF RAILROADS BY GROUPS.

	1902	1901	Change Increase (+) Decrease (—)
Trunk lines	$404,414,285	$381,531,847	+$22,882,438
Anthracite roads	73,554,281	82,071,359	—8,517,078
Southern group	147,011,661	133,784,884	+13,226,777
Southwestern group	312,701,135	301,093,911	+11,607,224
Middle and Western	97,283,057	89,426,860	+7,856,197
Northwestern and Pacific	318,984,299	288,731,204	+30,253,095
Total	$1,542,725,832	$1,449,841,005	+$92,884,827

Consolidations of railways were not so numerous as in 1901, but some were remarkable for their magnitude. One of the most sensational occurrences of the year was the acquisition of the Louisville and Nashville Railroad by John W. Gates and its subsequent incorporation with the Atlantic Coast Line. The Louisville and Nashville had previously bought the Atlanta, Knoxville and Northern, while the Atlantic Coast Line had absorbed the Savannah, Florida and Western. Later on, the Chicago, Indianapolis and Louisville passed under the joint control of the Louisville and Nashville and the Southern Railway (Morgan's system), thus establishing a "community of interests" that is very significant of the future. The St. Louis and San Francisco continued its policy of aggrandizement, acquiring the Chicago and Eastern Illinois, the St. Louis, Memphis and Southeastern, the St. Louis and Gulf and other roads. The Chicago, Rock Island and Pacific acquired the Burlington, Cedar Rapids and Northern, and the Rock Island and Peoria, and bought control of the Choctaw, Oklahoma and Gulf and the St. Louis, Kansas City and Colorado, the whole being incorporated under the name of the "Rock Island Company," with a capital of $150,000,000. The plan of exchanging $270 in new securities for $100 of the old stock was not favorably received on the Exchange, and was partly responsible for the sharp decline in prices.

One of the most important events of the year was the acquisition of the Western Maryland, and the Western Virginia Central and Pittsburgh railroads by the Gould interests, thus securing for their system an outlet to the seaboard. This and the plan for extending the Wheeling and Lake Erie to Pittsburg led to friction with the Pennsylvania Railroad, which found expression in the attempted exclusion of the Western Union Telegraph from the Pennsylvania system and the resignation of President Cassatt from the directory of the Mercantile Trust Company of New York. A general characteristic was the enormous new capital creations by the Pennsylvania, the Baltimore and Ohio, the New York Central, and the Illinois Central to meet the requirements of new construction, additional equipment, motive power, etc. At no time during the year were the transportation facilities sufficient to handle properly the enormous quantity of freight offered. More or

less delay and congestion occurred at various shipping centres. At Pittsburg the congestion became so serious in November that only the most heroic efforts of the Pennsylvania Railroad management prevented a complete blockade.

For commerce of the United States, see UNITED STATES (paragraphs Domestic Commerce and Foreign Commerce).

FINE ARTS. See ARCHITECTURE, PAINTING, SCULPTURE; also MUSIC.

FINLAND, on the Gulf of Bothnia, is nominally a grand duchy but practically a province of the Russian empire. It has an area of 144,255 square miles, of which nearly 13 per cent. is under lakes. The inhabitants on December 31, 1900, numbered 2,712,562, of whom about 83 per cent. were Finns and most of the remainder Swedes. There were only some 6000 Russians. Only about 12 per cent. were urban residents. The populations of the principal cities were: Helsingfors (with Sveaborg), 93,576; Åbo, 38,235; Tammerfors, 36,344; Viborg, 32,312; Uleåborg, 16,306. At the end of 1900 the Lutherans numbered about 2,662,000 and the Orthodox Greeks about 46,466. A relatively high standard of education is maintained, and, except along the Russian border, there is scarcely any illiteracy.

Government and Finance.—The grand duke is the Czar of Russia, who since 1899 has steadily violated the constitution in carrying out his plan of "Russification." The constitution provides for a diet, consisting of nobles, clergy, burghers, and peasants; its enactments may be vetoed by the grand duke. The administrative power is constitutionally vested in a senate, nominated by the crown and acting under the presidency of the governor-general. The military department is under the Russian ministry of war, and the department of foreign affairs under the Russian chancellor.

Finland has its own monetary and customs systems. The unit of value is the mark, worth 19.3 cents. Estimated revenue (including a balance from the previous year) and expenditures (including a surplus for the succeeding year) balanced at 88,508,916 marks in 1899, 87,506,882 marks in 1900, and 105,225,591 marks in 1902. On January 1, 1902, the public debt, which had been increased in 1901 by a loan of 24,927,000 marks, amounted to 135,367,627 marks.

Industries, Commerce, etc.—The leading industry is farming and the principal crops rye, barley, oats, and potatoes. Forestry and the wood-pulp industry are important, and there is some mining (chiefly iron) and manufacturing. According to a British consular report, published in the summer of 1902, the commerce of Finland, notwithstanding the deplorable administrative conditions brought about by the Russian authorities, was showing a satisfactory development, while the state of public finance was excellent and the country's credit good; and, despite an unusual emigration, the population was steadily increasing. Before the end of the year, however, the prosperous economic condition of the people was in large measure reversed by famine. (See paragraph Famine.) Imports and exports in 1900 were valued at 270,755,800 marks and 197,730,700 marks, respectively; in 1901, 215,600,000 and 186,900,000, respectively. The values of the leading imports in the latter year were: Cereals, 52,700,000 marks; iron, machinery, and iron goods, 26,800,000; coffee, 8,400,000; minerals, 8,200,000; sugar, 8,200,000; cotton, 7,200,000. In 1901 the values of the leading exports were: Wood, 95,600,000 marks; butter, 21,900,000; paper and wood-pulp, 21,200,000; skins and hides, 4,800,000. The imports from and the exports to the countries of greatest trade importance were, respectively, in 1901: Russia, 87,300,000 marks and 55,300,000 marks; Germany, 67,000,000 and 15,900,000; Great Britain, 25,600,000 and 52,400,000; Norway and Sweden, 12,100,000 and 6,400,000; Denmark, 9,600,000 and 13,200,000; Netherlands and Belgium, 6,300,000 and 15,600,000; France, 3,300,000 and 16,700,000. On January 1, 1902, there were in operation 1876 miles of railway, almost all of which is owned by the state.

"Russification."—The constitutional liberties of the Finnish people, which may be said to have had their beginning in the Swedish code of 1442, were recognized in Swedish parliamentary acts of 1772 and 1789; they were enlarged and guaranteed by Alexander I. of Russia, at the Borga diet in 1809, and were confirmed by Alexander II. in 1869 and by Alexander III. in 1886. The destruction of these liberties began in 1899. On January 24 of that year, Nicholas II., influenced by his reactionary advisers, particularly C. P. Pobiedonostzeff, procurator of the Holy Synod; General Kuropatkin, minister of war, and the Grand Duke Michael, issued a decree making a knowledge of Russian obligatory for senators and various other high officials; and on the 15th of the following month another imperial rescript ordered that new laws affecting Finland, after submission to the diet, should be referred to the imperial state council at St. Petersburg for settlement and promulgation. Despite a practically unanimous popular protest, this order, involving the "Russification" of the country, received imperial confirmation on July 4, 1899, and in the following September M. de Pleve, a reactionary statesman, was appointed acting secretary of state for Finland. An imperial ukase of June 26, 1900, ordered the gradual introduction (within a period of five years) of the

Russian language in all the official departments and public offices of Finland. A scheme of compulsory military service had been approved by the Czar in February, 1899, but on July 11, 1901, he sanctioned a new military service law, which, though unconstitutional, the senate was constrained to promulgate on August 1. Against this measure an enormous popular petition was signed by 471,131 persons, who were said to be all self-supporting adults able to write; but it only provoked imperial displeasure. Meanwhile under the governor-generalship of M. Bobrikoff, an autocratic, tactless and seemingly brutal official, the rights and privileges of the Finnish people had been variously restricted: among other things, a drastic censorship was established, the right of assembly curtailed, and strong Russian influence introduced into the educational system. This last innovation is perhaps the most subtle and far-reaching in the work of substituting an inferior for a superior civilization, and it is that "which gives to the spectacle a peculiar poignancy." Many writers have asserted that the Czar himself has been kept in ignorance of the actual conditions attending the subjugation of the Finns, that the real onus of the trouble rests upon his advisers; this is probably in large measure true, but in the Finnish mind this imperial apostle of peace turns out to be a tyrant and an oppressor, "the Ideologue has fallen to the Iconoclast," "the 'Little Father' has withered and shrunken from his potential fatherhood into the loathed estate of the 'Assassin of Finland.'" On the other hand, it is not likely that even his reactionary advisers are moved by malice. "Homogeneity," said the London *Spectator* in August, 1902, "is the Russian ideal. They want a realm in which there shall be but one language, and one creed, and one set of political institutions. It is before this ideal that the liberties of Finland have fallen rather than from any desire to punish the Finns."

In 1902 the most noteworthy developments in the policy of abolishing Finnish autonomy were the attempt in April to enforce the new military law and the promulgation at Helsingfors on October 1 of four new imperial ordinances. Formerly the Finnish army was distinct from the Russian, but, according to the law of August 1, 1901, Finnish recruits are to be drafted into the imperial service. In order to evade conscription the people of many of the communes, early in 1902, refused to elect the conscription boards, which conduct the levy, while the entire medical board of Finland resigned to avoid appointing medical officers to examine the recruits. The conscription came on in April, but of the young men drafted only a small percentage appeared. For example, at Helsingfors out of 857 men called 57 responded, and at Viborg 32 out of 150. So great was the popular indignation that serious riots broke out in the principal towns. At Helsingfors on April 18, 1902, the crowds, which had jeered at the police and some senators (who had yielded to the Russian policy), were charged upon by Cossacks, who used their knouts indiscriminately, injuring many women and children. As a result of the resistance against the conscription, the imperial government issued a rescript—which the Finns regarded as a practical proclamation of martial law—notifying them that "disobedience to the military law would be a convincing proof of the insufficiency of the administrative system inaugurated last century to guarantee the peaceful conduct of public affairs and submission to the authorities." For resisting the conscription several municipalities were fined from 15,000 to 20,000 marks, Helsingfors 30,000, and Hammerfords 35,000. The Russian authorities stated that the government did not intend to pass over lightly the refusal of the recruits to enlist, but it did not appear exactly how the 5000 young men in question would be punished. The Finnish courts declared that the military decrees did not have the force of law, and the Viborg court acquitted the recruits brought before it. But before the end of the year, as shown below, even the strength of the Finnish law courts was subverted. The Czar granted a temporary postponement of the conscription.

Four imperial ordinances, which seemed almost the last blow to Finnish autonomy, were issued in September, 1902, and promulgated at Helsingfors on October 1. The first of these ordered that the senate, which is the central administrative body and the supreme court of justice, should be under the direct and constant supervision of the governor-general, whose consent is necessary to the legalization of all its acts. The second law enabled the governor-general and "his senate" to dismiss without legal trial any administrative official not appointed directly by the Czar. The third empowered the judicial department of the senate to dismiss judges at its pleasure. The fourth law, which was regarded as the most subversive of all, provided that no official, from the governor-general down to a policeman, should be brought to trial on any charge without the consent of his superiors. These laws, like the "Russifying" decrees preceding them, are clearly in violation of the Finnish constitution, and the cumulative effect of all is practically the nullification of that instrument.

A large emigration from Finland, induced to a great extent by the Russian

policy, continued in 1902. M. de Pleve, secretary of state for Finland, was appointed Russian minister of the interior to succeed M. Sipiaguin after the latter's assassination on April 15, 1902. For six months, however, M. de Pleve was to continue his functions as minister for Finland together with those of his new office. M. Oerstroem, of Swedish origin, was appointed assistant minister. In April, 1902, the Finns were pleased at the retirement of General Shipoff, assistant to Governor-General Bobrikoff. In March, M. Lindelöf, president of the school board of Finland, resigned on account of trouble with M. de Pleve. Lindelöf was formerly professor in the University of Helsingfors, and is well known throughout Europe as a mathematician.

Famine.—In December, 1902, it was reported that some 400,000 persons in Finland were destitute and suffering from lack of food, and that conditions were even worse than in 1867, when 100,000 persons died. In many places the peasants were reduced to living on bread made from the bark of trees. The famine was due to an unusually cold summer followed by early frosts, which ruined the oat and barley crops, while many grain fields had been swamped by floods. Relief funds at home and abroad were established.

FIRE PROTECTION. From the municipal point of view, progress in fire protection of late has consisted chiefly in general improvements in public water supply systems and in the equipment of fire departments. The quantity of water available at fires, and particularly the pressure, is gradually being made more ample and reliable. Among the contributing causes to this desirable end, are larger and stronger water mains, and better fire hydrants, reduction in water waste, and increases in the water supply itself, and in the elevation of the reservoirs, or the capacity and power of the pumping engines. During 1902 Philadelphia joined the rank of cities having special fire mains. These cities now include Cleveland, Milwaukee, Detroit, Buffalo, Providence, Boston, and Philadelphia. (See *High Pressure Fire Mains*, in *Insurance Engineering*, October, 1902, for brief descriptions of each of these special systems. At Philadelphia there are four principal supply mains, one on Market Street, with an internal diameter of 14⅜ inches, and one each on Walnut, Arch, and Race streets, 10 11-16 inches in diameter. These four lines are connected at intervals by cross lines, one 10 11-16 inches and the other 7¼ inches in size. The pipes are of tough gray cast iron, with shells from ⅞ to 1½ inches thick. The lengths of pipe are joined by flanges and bolts, with canvas gaskets coated with pine tar. Sleeves are provided at intervals to allow for expansion and contraction. Specially designed hydrants are provided, with connections for 3½-inch hose. Pending the completion of a special pumping station on the Delaware River, water is supplied to the fire pipe lines by means of pumps on the city fire boats. A unique feature of the permanent pumping plant will be the use of gas engines to drive the pumps. Ultimately there will be ten 280 horse-power Westinghouse gas engines, direct-connected to 1200-gallon per minute Deane triplex pumps, but only seven will be installed at the outset.

A laboratory for investigating fire protection problems has been established at Boston, under the name of the Insurance Engineering Experiment Station, with Mr. Edward Atkinson as director. Its first report, on *Fireproof Wood, So-Called*, was issued in August, 1902. For several years past the Underwriters' Laboratory at Chicago has carried on numerous experiments with fire protection apparatus and various materials and devices related to fire hazards. In 1902 a staff of twelve was employed at the laboratory, which is supported by the National Board of Fire Underwriters, and is also related to the work of the National Fire Protection Association (in the insurance interests), the consulting engineers of the National Board of Fire Underwriters, and the electrical committee of the Underwriters' National Electric Association. The various organizations named are doing an immense amount of work in the standardization of fire protection apparatus and rules, and in testing fire-resisting materials and a variety of substances and apparatus affecting fire risks.

FISH, Nicholas, an American banker and diplomatist, the son of Hamilton Fish, President Grant's secretary of State, died in New York City, September 16, 1902. He was born in New York City, February 19, 1848, graduated at the Columbia Law School in 1867 and at the Harvard Law School in 1869, and two years later became second secretary of the American legation in Berlin. In 1874 he was promoted to be first secretary, was *chargé d'affaires* at Berne, Switzerland (1877-81), and from 1882 to 1886 was minister to Belgium. From 1887 until his death he was prominent in New York City banking circles. He was president of the New York State branch of the Society of the Cincinnati, and a member of many metropolitan organizations.

FISH AND FISHERIES. The most important event of 1902 from a practical point of view was probably the meeting at Copenhagen, July 22 and following

days, of the International Council for the Exploration of the Sea. The project has been under discussion for four years and previous conferences have been held at Stockholm and Christiania, but this was the first meeting of the officially appointed council. All the countries of northern Europe except France and Belgium have agreed to participate and were represented by delegates, among whom are some of the most eminent European biologists. It is understood that Belgium intends to participate in the work. Dr. Hering, head of the German Sea Fisheries Association, was chosen president; and Dr. P. P. C. Hoek, the Dutch zoologist, was made permanent secretary. As practical results of direct and immediate value to the fisheries are desired, and the money is appropriated solely to attain them, the biological investigations are necessarily greatly limited. It was decided to undertake at once the study of the migrations of the most important food fishes, especially the cod and herring, and the question of over-fishing in those places most frequented by trawlers. Plans were also laid for very elaborate and accurate oceanographical investigations. The permanent headquarters of the council are to be at Copenhagen, but the international laboratory will be at Christiania.

The economic aspect of the fisheries question has occupied a great deal of attention in Great Britain, as in previous years, her zoologists being alive to the importance of government supervision. One of the very best contributions of 1902 to the discussion of such questions is the second memoir of the Lancashire Sea Fisheries Committee. It is a quarto volume of 98 pages by W. A. Herdman and Robert A. Dawson, entitled *Fishes and Fisheries of the Irish Sea*. This report might well be made the model for such reports, so completely does it cover the ground. It includes accounts of the physical features of the Irish Sea, the surface currents, the bottom deposits, the life of the bottom in all parts of the sea, and finally the fishes themselves. Of the latter 141 species are listed, of which 41 are marketable, and 18 of these are pleuronectids, or "flat-fishes." The volume also contains full accounts of sea-fisheries committees, which are analogous to the State fish commissions of America, although their methods and powers are quite different. What appears most remarkable to an American is the entire absence of any artificial propagation of fishes or other animals. In this connection, reference should be made to the letter of Earl Grey in the London *Times* early in May, 1902, in which he calls attention to the great accomplishments of the United States Fish Commission on the western coasts of America, where the shad and striped bass have been introduced and now yield profitable fisheries, and more recently the artificial propagation of salmon has met with the greatest success. Nevertheless, sentiment in Great Britain seems to be against that government undertaking any similar work, skepticism as to its real commercial utility still being widely prevalent.

In America, the work of the Fish Commission went steadily on in 1902, with the usual excellent results. A bill was passed by Congress authorizing the fish commissioner to establish a biological station on the Great Lakes at some appropriate point, which he may select, and $10,000 were appropriated for selecting and securing land and water-front for such a station. The need of such a station has been felt for some time, and it is to be hoped that the commission will not have to wait long for the necessary appropriation for buildings and equipment. The *Fish-hawk* spent the winter on the southeastern coast of the United States and during the summer was at Beaufort, where she did important survey work. The *Albatross* was collecting among the Hawaiian Islands during the first nine months of the year, and after her return was hauled up at San Francisco for repairs. For further particulars as to her work, and for accounts of the work of the laboratories at Woods Hole and Beaufort, see ZOOLOGICAL EXPEDITIONS AND STATIONS.

Among the important investigations which have been carried on during the year or which have been reported in print, two are of much interest. One was upon the effects of spurge-poisoning on salmonoid fishes, and was made by Dr. H. M. Kyle. It seems that in Ireland, the peasants often secure salmon and trout by crushing the spurge, *Euphorbia hiberna*, and throwing it into the streams, where it speedily exerts a most destructive action upon fishes. Dr. Kyle shows that the poisonous action is apparently due to tannic acid. Similar uses of poisonous plants are known to exist among the natives of many other countries. The other report is entitled, *The Biological Basis of Legislation Governing the Lobster Industry*, and is made to the Massachusetts commissioners of fisheries and game by Dr. G. W. Field. The chief defect in existing laws is in permitting the destruction of adult lobsters, and Dr. Field suggests the repeal of present laws and the substitution of a law protecting adult lobsters, but permitting the capture and sale of immature individuals, not under six inches in length. Although this is a radical departure from present laws, it has both a common-sense and a strictly biological basis, and might well be made the foundation for legislation throughout the lobster district.

Among the interesting discoveries in the systematic zoology of fishes may be mentioned the capture of a whale-shark (*Rhinodon typicus*) on the beach near

Ormond, Fla., January 25, 1902. This curious animal is very rare, and, as few specimens have been taken, its geographical distribution is entirely unsettled, but the Ormond specimen is the first ever taken on the Atlantic coast of America. The individual was 18 feet long and its skin is now in the National Museum. The first three parts of volume xxvi. of *Notes from the Leyden Museum* are concerned with the fresh-water fishes of Borneo, the account being based upon the collection made by a recent trans-Bornean expedition. The most important fact brought out is that the fresh-water fish fauna of Borneo differs essentially from that of Celebes, especially in the presence of carps and cat-fishes. Attention has recently been called to the discovery in New Zealand of a marine species of Galaxias, which is often regarded as an exclusively fresh-water genus, and the fact has brought to light the existence of published records of the occurrence in the ocean, for spawning, of at least one other species of the genus which normally inhabits fresh water. These facts help to explain the curious distribution of these fishes, which are characteristic of the fresh waters of New Zealand, South Australia, Tasmania, South Africa, and South America. Finally, an important paper, dealing with the life history of eels, has appeared from the pen of Prof. C. H. Eigenmann. It is called *The Solution of the Eel Question*, and not only summarizes previous knowledge but records the discovery of the larvæ of the common American eel. The larvæ were taken at the surface of the Gulf Stream in midsummer. Dr. Eigenmann regards the question of the possible breeding of eels in fresh water as still unsettled, but it is notable that no eggs or young have ever been taken either in Europe or America, except in the ocean.

FLAX. This fiber, once the most extensively used of any for clothing, has now largely given way to cotton, and the crop in the United States is grown principally for its seed, used in making linseed oil. The flaxseed crop in 1902 was a large one, 29,284,880 bushels, as compared with about 26,000,000 bushels in 1901. This was produced on 3,739,700 acres, principally in the Dakotas, Minnesota, and Kansas, North Dakota producing more than half of the total crop of seed. The season was quite favorable to the crop, but the price was low—$1 to $1.25 a bushel. The total value of the crop on the farm was $30,814,661. The flaxseed crop in Manitoba was 582,228 bushels. The Russian crop was reported as almost a total failure; and that of Argentina was seriously injured by drought, the prospect at one time being for a crop of about 25,000,000 bushels, or one-third of the entire crop of the world. The yield as reported was 14,373,065 bushels, about a million bushels less than in 1901. In 1902 the imports of flax into the United States amounted to 7772 tons (valued at $2,094,915), coming principally from the United Kingdom (1878 tons), Russia (2451 tons), Belgium (1682 tons), Canada (823 tons), and Netherlands (564 tons). The flax grown for seed produces an inferior fibre as a rule, but attempts are being made to breed varieties that will combine good fibre with large seed production.

In the past most of the flax straw has been burned to get rid of it. Efforts are now being made to utilize the coarse fibre of this straw, which amounts to thousands of tons in the Dakotas and Minnesota, for paper pulp and for textile purposes. During the past season satisfactory results were obtained with it in the manufacture of binding twine.

"Flax sickness," which affects soils where flax is grown continuously for several years, has been found by the North Dakota Experiment Station to be due to a fungus disease. This disease thoroughly infests the soil, and the plants die of wilt. The disease may also be spread by the seed. The obvious remedy is to rotate the crop with other crops, and carefully to select non-infected seed for planting. The growing of flax and wheat mixed has been tried with success on rich land. The wheat is drilled in in one direction across the field, and the flax at right angles to it. The North Dakota Station has found that the two crops can be grown together profitably on rich land, the flax tending to reduce the growth of the wheat, causing the kernels to fill better; the flax also uses the surplus water, and acts as a support for the grain, preventing it from lodging.

FLINT. See MINERAL PRODUCTION.

FLORIDA, the southernmost State of the United States, has an area of 56,680 square miles. Florida was organized as a Territory March 30, 1822, and admitted as a State March 3, 1845. The capital is Tallahassee. The population in 1900 was 528,542; in June, 1902, as estimated by the government actuary, it was 557,000. The populations of the four largest cities in 1900 were: Jacksonville, 28,429; Pensacola, 17,747; Key West, 17,114; and Tampa, 15,839.

Finance.—The total receipts of the treasury during the year 1902 were $2,263,977.12. The balance on hand December 31, 1902, was $1,092,458.26. The principal funds for which collections and disbursements were made, are the general revenue fund and the Indian war claims fund. The bonded debt of the State, at the end

of the calendar year 1902, consisted of $764,800 6 per cent. bonds and $267,700 3 per cent. consolidated manuscript bonds, making the total indebtedness of the State $1,032,500.

Agriculture and Industries.—The two leading crops, corn and cotton, were better in 1902 than in 1901, though still slightly below the ten-year average. According to the *Crop Reporter*, the year's average of lint cotton was 120 pounds per acre. Corn, which had by far the largest acreage of any crop (602,400 acres) yielded a total of 5,180,640 bushels, with a value of $3,989,093. The 31,949 acres of oats yielded 434,506 bushels, valued at $265,049. Rice, which had an acreage of less than 6000 acres, yielded 27 bushels per acre—about 95 per cent. of the normal crop for the State. Sweet potatoes yielded 113 bushels per acre against a 10-year average of 101. The tobacco fields were more than ordinarily productive—3079 acres produced a total of 1,601,080 pounds of tobacco, valued at $480,324. The yield of sugar-cane is estimated at 75 per cent. of a full crop. The orange orchards, which had been the State's principal source of income before the frosts of 1895 and 1899, were beginning to revive in 1902; 750,000 boxes were picked in that year—over three times the yield shown in the census for 1899. The statistics of the Department of Agriculture for January 1, 1903, showed there were in the State 44,695 horses, 626,345 cattle, 99,067 sheep, and 395,528 swine. The only important mineral of the State is phosphate rock. The output in 1901 was 751,996 long tons, an increase of more than 100,000 tons over the year preceding. Florida produced more than all the other States together.

Railroads.—In the report of the Railroad Commission of the State of Florida for the year ending June 30, 1901, the total number of miles of railway in operation was stated at 3,466.45 miles, of which 2,774.35 were main track. The nineteen roads reporting to the commission had a trackage of 3,026.44 miles, represented by an outstanding capital stock of $35,328,728.17 and an outstanding bonded debt of $35,001,472.88, making an aggregate capitalization of $70,330,201.05, or $23,238.59 per mile of road. The total gross earnings of the roads reported were for the year mentioned $9,179,133.85, of which $3,203,376.98 were passenger earnings, $5,595,-338.89 were freight earnings, and $380,417.98 were from other sources. The amount expended during the year for maintenance of way and structures was $1,780,815.33; for maintenance of equipment, $1,245,029.68; for conducting transportation, $3,551,-028.85; for general expenses, $368,422.46—making a total for operating expenses of $6,915,296.32. The nineteen roads reporting carried 4,864,848 tons of freight an average distance of 94.28 miles at an average cost of $1.17 per ton mile. Freight earnings per mile of road were $1,854.44 and per train mile $1061. The number of passengers carried during the year was 2,001,092, and the average distance traveled by each passenger was 44.99 miles. The passenger earnings per mile of road were $1,081.63, and per train-mile $1022. The total net earnings from operation for 1900 were $1,916,599.44, and the net earnings for 1901 were $2,263,-837.54. The total number of employees in 1901 was 17,935; the total assessed valuation of all railroads in Florida, both those reporting and those not reporting, was: Main track, $16,095,715; branch and switch tracks, $720,192.74; rolling stock, $2,507,791.42, making a total valuation of $19,323,699.16, upon which were paid taxes to the amount of $357,076.67.

Early in January, 1902, the Florida East Coast Drainage and Sugar Company was formed to reclaim the Everglades and utilize them for sugar plantations.

Elections.—At the regular biennial State election, held in November, 1902, the officers voted for were secretary of state, justice of the supreme court, comptroller, and railway commissioners. No Republican ticket was put in the field. The Democratic candidates were elected by votes varying from 15,215 to 16,215. The State legislature of 1903 will be composed of 32 Democrats in the senate, and 67 Democrats and one Republican in the house.

State Officers.—For 1902 and 1903: Governor, William S. Jennings, for four years, term ending January, 1905; secretary of state, H. C. Crawford; treasurer, James B. Whitfield; comptroller, A. C. Croom; attorney-general, William B. Lamar; superintendent of public instruction, W. N. Sheats; commissioner of agriculture, B. E. McLin; commissioners of railroads, R. H. Burr, J. B. Browne, J. L. Morgan —all Democrats. Supreme Court: Chief Justice, R. F. Taylor; associate justices, W. A. Hocker, F. B. Carter, E. C. Maxwell, T. M. Shackelford, and R. S. Cockrell—all Democrats. For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

FLUORSPAR. See MINERAL PRODUCTION.

FLYING MACHINES. See AERIAL NAVIGATION.

FOOD. The employment of artificial preservatives in food continued to excite a great deal of interest during 1902, and investigations were carried on in the United States, England, Germany, and Russia. Boric acid and borax attracted most atten-

tion, and the opinions of different students of the food question were not always agreed as to whether or not their use is harmful. Vaughan and Veenboer, after reviewing the results of previous investigations and experimenting themselves, conclude that the use of boric acid or borax in butter and cream, in amounts not exceeding one-quarter of 1 per cent. in the latter and one-half of 1 per cent. in the former, as recommended by the English commission in 1901, is not harmful and is fully justified. The dusting of hams and bacon with borax or boric acid in quantity not exceeding 1½ per cent. of the weight of the meat is also unobjectionable and effective, since meat thus treated does not become slimy, and the growth of micro-organisms is prevented. In the United States the effects of repeated small doses of boric acid and other food preservatives, as well as of coloring matters and adulterants in general, on the human system, are to be the subject of government experiment under the direction of the Department of Agriculture at Washington, a number of healthy but impecunious individuals having been secured for the purpose. Dr. Willis G. Tucker of the New York State department of health says, in a paper read before the conference of sanitary officers, October, 1902, that among the substances which have been employed during recent years for the preservation of food are boric acid and borax, salicylic acid, sodium salicylate, benzoic acid, sodium benzoate, sulphurous acid, and the sulphites of sodium, potassium, and calcium, betanaphthol, formaldehyde, saccharine, the alkaline fluorides, and borofluorides and silico-fluorides, pyroligneous acid and asaprol. Some of these substances have well-recognized uses in medicine, and some of them are distinctly poisonous. There is little question but that if added in any considerable quantity to food they are dangerous. The question, however, is a very complex one and has to be considered with reference to the quantity of the particular food consumed, the nature of the food and manner of its use, and the effects likely to be observed in adults, invalids, and children. Experimenters in the city laboratory of Lodz, Russia, found saccharine in 50 per cent. of 71 samples of syrup; injurious substances in 43 per cent. of as many samples of confectionery; aniline dyes and salicylic acid in 7 out of 9 samples of marmalade; and dirt, flies, moulds and hair in 4 out of 6 samples of cake. Of 34 samples of milk, 14 contained dirty water, soda, and pathogenic organisms; of 6 samples of sour cream, 2 contained milk, flour, dirt, moulds, and putrefactive bacteria. Ptomaines were detected in bologna sausage, and various adulterations were discovered in vinegar, beer, soda water, sugar, and other foods.

FOOTBALL, the first of college sports and reaching its greatest development among the colleges, enjoyed in 1902 the most successful season in the history of the American game. A partial reversion to the old-fashioned straight game with plenty of kicking, as distinguished from complicated trick plays and heavy mass formations, increased the interest of spectators and diminished the number of accidents to players. What changes there were in the rules concerned only minor details of play and were without effect on the general character of the game. But the season was not without its lessons, the chief of which was the demonstration of the superior value of the open game and the necessity for such legislation as would make it the distinguishing style of play rather than the optional exception. Of the eastern teams Yale was the undisputed champion, gaining this place by defeating Harvard, 23—0; and Princeton, 12—5. She also defeated Amherst, 23—0; Wesleyan, 35—0; Brown, 10—0; Bowdoin, 17—6; and tied with West Point at 6—6. Her team was a steady, consistent unit rather than a collection of stars. Between Harvard and Princeton the only basis of comparison is the contests of each with Yale, and Harvard, though beaten by a larger score, is generally conceded second place for her season's work and the fact that the Yale team of that game was in far better condition than at the Princeton game of a week before. Harvard was defeated because her defense was too slow for the aggressiveness of the Yale attack. During the season she won from Brown, 6—0; Williams, 11—0; Amherst, 6—0; West Point, 14—6; Carlisle Indians, 23—0; Pennsylvania, 11—0; and Dartmouth, 16—6. Princeton had the best kicker in the country in De Witt and a good line to hold for him, and with better backs would have beaten Yale. Some of her other games were with Swarthmore, 18—0; Lehigh, 23—0; Annapolis, 11—0; Columbia, 22—0; and Cornell, 10—0. Two features of the season were the disappointing work of Pennsylvania and Columbia and the maintenance of the rapid rise made by such teams as Cornell, West Point, Brown, and Dartmouth, which must now be reckoned with in deciding the so-called "championship." Cornell defeated Rochester, 31—0; Union, 43—0; Williams, 37—6; Lafayette, 28—0; and lost to Carlisle, 10—6; Princeton, 10—0; and Pennsylvania, 12—11. West Point, in addition to tieing Yale and scoring against Harvard, defeated Williams, 28—0; Dickinson, 11—0; Syracuse, 46—0; and Annapolis, 22—8. Carlisle, besides winning from Cornell and losing to Harvard, defeated Pennsylvania, 5—0; and was in turn beaten by Bucknell, 16—0; and Michigan, 60—0. Pennsylvania, aside from games mentioned, defeated Lehigh, 12—0; Bucknell, 6—5; Columbia, 17—0; and lost to

Brown, 15—6; and Annapolis, 10—6. Some other important games were: Dartmouth, 12, Brown, 6; Amherst, 12, Dartmouth, 6; Amherst, 29, Columbia, 0; Columbia, 5, Buffalo, 0; Columbia, 5, Annapolis, 0; Columbia, 6, Syracuse, 6; Brown, 5, Wesleyan, 0; Wesleyan, 6, Amherst, 5; and Syracuse, 15, Amherst, 0.

In the west, the Michigan team was vastly superior to its nearest rival. It was a cause for great regret that distances forbade a series of games that would show her relative position with the eastern teams. By some it was considered the strongest team in the country, and by even the most conservative it was admitted to the first four. Some of her victories were: with Case School, 48—6; Indiana, 60—0; Notre Dame, 23—0; Wisconsin, 6—0; Iowa, 107—0; Chicago, 21—0; Oberlin, 63—0; and Minnesota, 23—6. Other western scores were: Chicago, 12, Northwestern, 0; Chicago, 11, Wisconsin, 0; Illinois, 29, Nebraska, 6; Minnesota, 17, Illinois, 5; Minnesota, 11, Wisconsin, 0. On the Pacific coast California defeated Leland Stanford in their annual game 16—0.

FORD, Paul Leicester, an American historical writer and novelist, died in New York City, May 8, 1902. He was born in Brooklyn, March 23, 1865, the son of Gordon L. Ford. Physical deformity kept him from active sports in youth and made him much of a recluse and student in his father's library, where, instead of at school, his education was acquired. His father provided him with a printer's outfit, and with his brother's aid he issued from his private press several works of a bibliographical character, dealing with early American history, and the lives of Hamilton and Franklin. Among these were the *Webster Genealogy;* a *Bibliography and Reference List of the History and Literature Relating to the Adoption of the Constitution; Bibliotheca Hamiltonia; Essays on the Constitution; Pamphlets on the Constitution;* lists of the official publications of the Continental Congress, and of the magazines published in the eighteenth century. He was also the editor of the standard edition of *Thomas Jefferson's Writings.* In 1896 he published *The True George Washington,* aiming to present the life of the man stripped of its accretion of false traditions. In 1899 he wrote another entertaining biography, *The Many-Sided Franklin.* It is in books like these that he has probably achieved a permanent place in American letters; although his popular success in such works of fiction as *The Honorable Peter Stirling* (1894); *Janice Meredith* (1899); and *The Story of an Untold Love* (1897) was large for the time. At the time of his death he was preparing editions of John Dickinson's *Political Writings* (of which one volume had appeared) and of Weems's *Life of Washington,* and was editor-in-chief of *The Bibliographer.* He was shot and killed by his brother Malcolm as a result of a long-standing difference over the division of their father's estate.

FOREIGN MISSIONS. See Missions, Protestant Foreign.

FOREIGN MISSIONS, AMERICAN BOARD OF COMMISSIONERS FOR. See American Board of Commissioners for Foreign Missons.

FORESTRY. The interest in forestry in national, State, and private circles assumed an unusual activity during 1902, and with the reorganization of the forestry work of various departments the government can be said to have entered upon a definite forest policy. A number of the States have also made some progress along the same line. Private individuals in increasing numbers have sought to adopt systems of rational management for their holdings whereby steady incomes may be secured. One of the most notable proofs of the spread of forestry ideas is shown in the wide demand made upon national, State, and forestry school authorities for information regarding forests and the proper methods for their conservative exploitation. The importance of rational forestry is appreciated by the President, who by his messages and proclamations has shown his deep interest in the subject. The control and study of the national forest reserves continue to be divided among the General Land Office and Geological Survey of the Department of the Interior and the Bureau of Forestry of the Department of Agriculture. The desired legislation transferring the control of the reserves to the Department of Agriculture, although recommended by the secretaries of Agriculture and the Interior and endorsed by the President, failed of enactment. This division of the forestry work of the government is unsatisfactory and, as has been repeatedly pointed out, leads to much duplication and confusion.

Timber Resources and Production.—The twelfth census reports the timber resources of the United States, exclusive of Alaska and the island possessions, at 1,300,000,000,000 feet B. M. A second tabulation based upon mill estimates represents the available saw timber at 1,093,000,000,000 feet B. M. Oregon, California, and Washington in the order named contained the largest estimated amounts. The total cut of timber for the census year was 35,084,166,000 feet B. M., valued at $566,832,984. To this should be added the value of forest products cut or produced on the farm, $109,989,868, and turpentine, resin, etc., at $20,344,880, making the total value for all forest products $687,167,732. The year 1902 was a prosperous one for the lumber

trade in general. The productive capacity of the hardwood forests of the south has about kept pace with the diminished production in the north. The available data for the timber cut during the year are by no means complete, but Michigan, Wisconsin, and Minnesota, which are usually believed to produce one-fifth to one-fourth of the total of the country, cut 5,294,395,000 feet B. M. of white pine, 1,277,814,000 feet of hemlock, and 730,315,000 feet of hardwoods. The cut by the mills on the Pacific coast is said to have exceeded that of 1901, but no definite figures are given. The heavy increase in the Southern States has given rise to fears that the period of final exhaustion is not far off and has turned the minds of thinking men to the consideration of forest protection and management. In 1901 the domestic exports from the United States of unmanufactured wood were valued at $39,398,594, and of manufactures of wood $12,437,864—total $51,836,458. In the same year the imports of unmanufactured wood were valued at $22,050,952, and of manufactures of wood $5,837,572.

Forestry in the Department of Agriculture.—Following the reorganization of the forestry work of this department and the creation of the Bureau of Forestry, rapid development has taken place and with its increased capacity and opportunities the value of its work is more highly appreciated. The bureau in 1902 had 162 men in the field carrying on work in 42 States and Territories. Applications for assistance in the management of private forest tracts continue to be made, the total requests at the end of 1902 covering 4,709,120 acres. Working plans are complete or nearly so for seven large tracts of forest representing 421,000 acres, and preliminary inspections have been made of 1,620,000 acres, and working plans for six tracts, one embracing 1,250,000 acres, are in course of preparation. Studies were made in the Prescott, Priest River, and Big Horn forest reserves preliminary to the preparation of forest working plans for the national reserves. This work was undertaken at the request of the secretary of the Interior. The bureau has also undertaken for the secretary of War the preparation of working plans for 8 military reservations embracing 117,468 acres. In the Division of Forest Investigations studies have been pursued on the sylvicultural value of some 20 species of commercial forest trees. Special studies were begun on the big trees of California and of the swamp lands in eastern Arkansas and Missouri. The study of forest distribution has been begun in 8 or 10 States and the effect of grazing on the forest in a number of western States. The effect of forest fires on future reproduction of forests is also being given consideration. The production of turpentine has been under investigation and a method devised whereby a great saving can be effected. The cooperation of the bureau in tree planting has been sought as earnestly as in forest management. Up to June 30, 1902, there had been prepared 224 planting plans covering 6474 acres, in 29 States and Territories. Studies were continued on the natural extension of forests and preparations begun in the planting of the two new reserves in Nebraska. There were established two new divisions on July 1, 1902, the Division of Forest Extension and the Division of Forest Products. The appropriation for the year ending June 30 was $291,860.

Forestry in the Department of the Interior.—As previously stated the work in forestry of this department is divided into the administrative under the General Land Office, and the surveying and mapping of the reserves under the Geological Survey. The reorganization of the administrative functions begun in 1901 was continued in 1902, and the section of the General Land Office devoted to forestry was raised to a division and given enlarged powers and a more efficient organization. As now organized the field force consists of several rangers for each reserve, one or more supervisors for each reserve, superintendents having jurisdiction over several reserves, and an inspector over all. The duties and powers of each of these officers are indicated by their titles and are fully described in a manual that has been issued for their guidance. The value of this system has been already demonstrated in the discovery and extinguishing of many incipient forest fires, in preventing trespassing, and in checking the unlawful cutting of timber. During 1902 the sales of timber from forest reserves amounted to $25,483.87, the free use of timber granted was valued at over $10,000, and grazing privileges at $100,000. Fines, judgments, and claims for timber depredations were settled to the amount of $284,078.85, and suits are pending for the recovery of $2,970,151.10, the value of timber alleged to have been illegally cut. Since the close of the fiscal year ending June 30, 1901, a number of changes have been made in the forest reserves already established, and 13 new ones created by presidential proclamation, the total increase being 13,765,556 acres. The new reserves are: Santa Rita, Santa Catalina, Mt. Graham, and Chiricahua forest reserves in Arizona; Santa Isabella forest reserve in Colorado; Niobrara and Dismal River forest reserves in Nebraska; Medicine Bow forest reserve in Wyoming; Lincoln forest reserve in New Mexico; Little Belt Mountain, Madison, and Absaroka forest reserves in Montana; and the Alexander Archipelago forest reserve in Alaska. There were in all at the end of 1902 54

forest reserves set aside by presidential proclamation which embraced 60,175,765 acres. Withdrawals of 19 additional tracts have been made or are pending and as soon as examined the tracts temporarily withdrawn from entry that are deemed suitable will be proclaimed as new reserves or additions to those already established and the remainder opened for entry, sale, or other disposal. Under authority from Congress the secretaries of the Interior and of Agriculture caused an investigation to be made of a portion of the southern Appalachian system and they recommend the establishment of a forest reserve of approximately 10,000,000 acres. The legislation requisite to consummate this project is still pending.

Forest Fires.—Within the forest reserves the loss from forest fires in 1902 was less than for several years, the burned-over area being 87,799 acres, as compared with 126,223 acres in 1901 and 158,607 acres in 1900. Outside of the forest reserves the year 1902 was one of numerous and extensive forest fires, some of which were accompanied by loss of life. There was not a month in which losses amounting to thousands of dollars were not reported, the total for the year amounting to about $25,000,000. The most severe losses were in June and August. During the latter month parts of Oregon and Washington were swept by fire causing financial losses amounting to nearly $15,000,000, while at least a score of persons lost their lives. It has been estimated that the timber destroyed in Washington would have supplied for four years all the mills of the State running at full capacity. In seeking causes for these fires it has been found that they were due in most cases to one of three agencies, sparks from locomotives, carelessness with fire in clearing land, or abandoned camp fires. In Pennsylvania a number of convictions were secured for violations of the law relating to camp fires. The attention of the legislatures of a number of States has been called to these sources of loss and enactments are requested to prevent their future occurrence.

Forestry in the Philippines.—During 1902 the Insular Bureau of Forestry has reported substantial progress in the Philippine Islands. The working force was considerably augmented and divisions of inspection, forest management and forest botany were established. The forest regulations already established were found satisfactory in the main. It is now thought that instead of annual licenses, provision should be made for special licenses that should run for a longer term. These would justify the installation of plants capable of operating on a scale that is now impracticable. At present no lumberman is allowed to cut more than 100,000 cubic feet of timber, an amount too small to warrant large expenditures for exploitation. Under the present conditions even when lumbering only the superior classes of timber the expense is so great as almost to prohibit timber cutting more than five miles from navigable waters. In spite of the activity in lumbering, Manila continues to absorb practically all the timber brought to market, and the price of all grades of construction timber has increased 50 and in some cases 100 per cent. In his last report the forester says that the time for the exploitation of timber to other than Asiatic ports is a long way off, except perhaps for some of the finer cabinet woods. The forest area of the Philippines is now estimated to be 48,112,920 acres, of which less than 1,000,000 acres are held by valid private titles. Recent investigations have shown the existence of large numbers of gutta percha and rubber trees, but the wasteful clandestine trade if not checked will soon result in their destruction. A government monopoly in these products has been suggested as a means of preventing the destruction of the trees, operations to be conducted scientifically. The revenue of the Forest Bureau for the year 1902 was $348,073.08 (Mexican), the average charge being about 6 cents per cubic foot or from 5 to 10 per cent. of the market value of the timber. The imports of timber into the Philippines for the year ending June 30, 1902, were 1,761,425 cubic feet, of which 1,033,751 came from the United States. At the request of President Roosevelt and the Philippine Commission, the chief of the Bureau of Forestry of the United States Department of Agriculture visited the islands during 1902, and with a few minor changes in detail the general policy of management is said to have been approved.

State Forestry, etc.—Connecticut, Kansas, Maine, New Hampshire, Maryland, Michigan, Minnesota, New Jersey, New York, North Carolina, North Dakota, Oregon, Pennsylvania, West Virginia, and Wisconsin continue to carry on the work of State forestry, although New York and Pennsylvania are the only ones making anything like adequate provision for its support. In Ohio, Colorado, and California the work has been nearly abandoned on account of a lack of funds, although these were among the first States to begin forest work. Indiana has a forest commissioner, but the appropriations have not been sufficient to accomplish much. He recommends provision for a State park and for extending the work along various lines. In Pennsylvania 40,000 acres in 1902 were added to the State forest reserves, which now embrace 325,700 acres. In New York the trouble over the management of the State reserves by the State Forest School was adjusted and reforestation was

begun. In Minnesota the efforts for a reserve about the headwaters of the Mississippi River were continued and provision was made for its establishment under terms to be laid down by the secretary of Agriculture. Progress is reported in securing and managing land granted or reverted to the State under the law of 1899. As a result of the destructive forest fires in Washington during 1902, it is said that two-thirds of the legislature favor the adoption of some system of management so as to avert similar losses in the future. At Hartford, Conn., the planting of various species of forest trees about the watershed has been begun. Similar work is being carried on at Woonsocket and Clinton, Mass. The Illinois Central Railway has begun tree planting along its right of way between Chicago and New Orleans, and the contract is let for planting 200,000 hardy catalpa trees. Experiments in Kansas and elsewhere show that this tree is of rapid growth and well adapted to the production of railroad ties of excellent quality. The Fort Worth and Denver Railway has begun similar efforts in northwestern Texas.

Forestry Associations, Schools, etc.—The summer meeting of the American Forestry Association was held at Lansing, Mich., August 27-28, 1902, and the winter meeting at Washington, D. C., December 10, when an adjournment was made until December 31, so as to meet with the American Association for the Advancement of Science. The old officers were re-elected. The annual meeting of the Canadian Forestry Association was held at Ottawa, March 6-7, 1902. The Iowa Park and Forestry Association met at Des Moines, December 8-9, and the Tennessee forestry meetings were held at Monteagle, July 21, and at Knoxville, November 12. In 1902 a society for the protection of forests was organized in New Hampshire and a forestry and water storage association in New York, and a State forestry association was organized at Cheyenne, Wyo. Other societies, particularly those of Massachusetts, California, and Michigan, were active in seeking to improve the forest conditions of their States. The increased interest in forestry is shown by the large enrollment at the schools of forestry. The New York State College of Forestry matriculated 70 students, the Yale Forestry School 40, and Biltmore 18. These institutions maintain summer schools, most of the time being spent in the woods. The universities of Michigan and Nebraska and the agricultural colleges of Indiana, Iowa, Kansas, Michigan, Minnesota, New Hampshire, North Dakota, Ohio, South Dakota, and Tennessee are offering courses in forestry, and the University of California contemplates the establishment of a school of forestry. A new forestry journal, the *Forest Quarterly*, made its appearance in 1902 from the New York College of Forestry. Among the deaths of men prominent in forestry was that of Hon. J. Sterling Morton (*q.v.*), former secretary of Agriculture and president of the American Forestry Association.

FORMOSA, an island in the Pacific Ocean 100 miles off the China coast and 250 miles north of the Philippines, is a Japanese possession. It has an area of 13,458 square miles and a population (1899) of 2,758,041, the greater part of which is Chinese. The Japanese population numbers 33,120, and the primitive Malayan aborigines living in the interior of the island are estimated at 100,000. The seat of government is at Taipei, on the northwest coast, other places of importance being Tainan, Tamsui, and Auping. Its control by Japan, to which country the island was ceded by China as a result of the war of 1894, is exercised through a governor-general (Baron Kodama since 1898). Under him there is a civil governor, whose powers extend to the districts in which civil rule has been established. The interior is still largely under military control, the imperial troops in 1901 numbering 16,387. The island is divided into six administrative districts, and the Pescadores, a small group of islands off the western coast, are also under the control of the Formosan government. Thanks to the able administration of Governor Kodama the island is enjoying great financial and commercial prosperity. The revenue is increasing rapidly and the actual receipts have surpassed the budget estimates. In 1897 the actual revenue amounted to little more than 5,000,000 yen. In 1900 the budget estimates placed the receipts at 9,510,000 yen and the actual revenue reached a total of 15,200,000 yen. The budget for 1901-02 placed the receipts at 20,894,641 yen and the expenditure at 20,852,441 yen. The government monopolies of opium, salt, and camphor yield an annual revenue of about 9,000,000 yen and a subsidy is received from the imperial government. (The yen is worth 49.8 cents.) Foreign commerce is increasing, the imports amounting in 1900 to 10,571,285 yen and the exports to 13,570,664 yen. The trade is largely with China, Great Britain, the United States, and British India. The chief products are camphor, of which Formosa furnishes the greater part of the world's product, tea, rice, sugar, hemp, flax, indigo, silk, opium, and cattle. The gold product amounts to over 1,000,000 yen annually. Extensive harbor improvements have been undertaken, and a trunk-line railway to extend over the entire length of the island is under construction; two sections of it, connecting Takow and Kelung, and Tainan and Taipei, have been completed and are in operation.

FOSTER, Rebecca Salome, known in New York City as the "Tombs Angel," died in that city, February 22, 1902. Of her private life the public knew almost nothing except that she was the widow of Gen. John A. Foster, a Civil War veteran, and had lived in New York City for about 15 years previous to her death. Her charitable work extended over many quarters of the city, but her special ministerings were to the women in the Tombs prison, whose acknowledgment of her many acts of kindness was the sobriquet by which they always spoke of her. With a personality that seldom failed to win confidence she performed an immeasurable service to the city's social system in reforming waywardness and allaying distress, and so accurate were her judgments that she was often consulted by lawyers and judges in cases involving her charges. She lost her life in a fire at the Park Avenue Hotel. Her funeral services were made the occasion for expressions of appreciation by prominent public officials.

FOWLER, Joseph Smith, ex-senator from Tennessee, died April 1, 1902, at Georgetown, D. C. He was born August 31, 1820, in Steubenville, O., and was educated at Franklin College, where he was afterward professor of mathematics for four years. After studying law he settled in Tennessee and became president of Howard Female College at Gallatin. In 1861 he removed to Illinois and remained until the occupation of Nashville by the Union troops, when he returned to Tennessee. He took an active part in reorganizing the State government in the interest of the Union, and was State comptroller under the administration of Andrew Johnson, a member of the Baltimore convention in 1864, a member of the constitutional convention of Tennessee in 1865, and was elected to the United States Senate by the legislature of that year. He was one of the seven Republicans who voted against the impeachment of Andrew Johnson. After 1871 he practiced law in Washington, D. C.

FRANCE, a republic of western Europe, lying between the Atlantic Ocean on the west and Germany on the east. The capital is Paris.

Area and Population.—The total area, including Corsica, is 204,092 square miles. The population, according to the census of 1901, was 38,961,945, which was an increase over the census of 1896 of somewhat less than 125,000 for the entire country. As the increase of Paris and its suburbs was slightly in excess of that figure, it is seen that the population of the rest of the country must have declined. An examination of the population figures for births, deaths, marriages and divorces for the years 1900 and 1901 shows somewhat of an improvement over the previous years, and it is hoped by sociologists and politicians alike that the improvement augurs well for the future. According to these figures, made public in 1902, the deaths declined from 853,000 in 1900 to 784,000 in 1901, and the births increased from 827,000 in 1900 to 857,000 during 1901. This was a higher record of births, and a lower record of deaths than for any year since 1897. Brittany and French Flanders showed the greatest increase of births over deaths, while the department of the Seine (Paris and its suburbs) showed 79,000 births to 73,000 deaths. Marriages in 1901 increased to 303,000 as compared with 299,000 in 1900. Divorces on the other hand increased from 7157 to 7741, the largest number since the revival of the divorce law. The populations of the largest cities in France in 1901 were Paris, 2,660,559; Marseilles, 494,769; Lyons, 453,145; Bordeaux, 257,471; Lille, 215,-451, and Toulouse, 147,696.

Government.—Since the overthrow of Napoleon III., in September, 1870, France has had a republican form of government. The present constitution, adopted originally in 1875, has been frequently amended. Under it the executive authority is vested in a president, and the legislative power in a parliament or assembly, consisting of two houses, a senate and a chamber of deputies. The members of the senate, 300 in number, are elected for a term of nine years by an electoral college in each department, composed of the deputies, members of the general council and of the council of the *arrondissements* and delegates from the municipal and communal councils. One-third of the members retire every three years. The chamber of deputies is composed of 584 members elected for four years by universal suffrage, one from each of the *arrondissements*, into which the departments are divided for electoral purposes. The two houses in joint session (the national assembly) elect the president, whose powers are in reality exercised by a cabinet of responsible heads of departments. For local administration the country is divided into 87 departments, each governed by an appointive prefect, and possessing a representative assembly known as the general council. The unit of municipal government is the commune, and over each is a mayor, who is elected by the communal council and exercises limited executive powers.

The president of the republic is M. Emile Loubet, elected February 18, 1899. The ministry of M. Waldeck-Rousseau, which was organized in June, 1899, and remained in office until after the election in 1902, was constituted as follows: Premier and minister of the interior. M. Waldeck-Rousseau; minister of finance,

M. Caillaux; for foreign affairs, M. Delcassé; war, General André; marine, M. de Lanessan; colonies, M. Decrais; public instruction and worship, M. Georges Leygues; justice, M. Monis; commerce, industry, posts and telegraphs, M. Millerand; agriculture, M. Jean Dupuy; public works, M. Pierre Baudin.

Army.—The French army is recruited on the conscriptive system. All able-bodied male citizens between the ages of twenty and forty-five are liable for service either in the active army or the reserves, and substitution and enlistment for money are forbidden. The term of service is three years in the active army, ten years in the reserve, six years in the territorial army, and six years in the territorial reserve. The estimated peace strength of the army in 1902 was placed at 29,424 officers and 553,000 men for the home army, and 1615 officers and 25,727 for the colonial army. The reserve of the active army includes about 1,320,000 men, and the territorial army and reserve, 2,270,000 men. The total strength of the French army, with its various reserves and territorial forces, is estimated at 3,500,000 trained men on a war footing.

Navy.—The supreme direction of the French navy is intrusted to the minister of marine, who acts as chief of the civil cabinet which controls the administrative work. He is assisted by a chief of staff, who is a vice-admiral, and who has, as chief of the military cabinet, extensive powers in reference to construction, maintenance, commissioning, and mobilization of the fleet, and of all preparations for war. For administrative purposes the French coast is divided into five maritime *arrondissements*, each under control of a vice-admiral. The fleet is divided into the Mediterranean squadron, the Channel squadron, and the divisions of the Atlantic, Pacific, the Far East, Cochin-China, and the Indian Ocean. The naval expenditure of the French government in 1901 was 327,692,530 francs, and the budget estimates for 1902, 312,097,951 francs. The personnel of the navy in 1902 consisted of 59,875 officers and men. The navy is manned partly by conscription and partly by voluntary enlistment. The *Inscription Maritime* provides a naval reserve of 114,000 men. The term of service in the navy is the same as that in the army. In 1902 the strength of the French fleet was as follows: Battleships (first-class), 5, and 3 under construction; battleships (second-class), 7; battleships (third-class), 13; armored cruisers, 17, and 4 building; coast defense ships, 18; protected cruisers, 40; torpedo gunboats, 15; destroyers, 15, and 15 under construction; torpedo boats (all classes), 162, and 26 building and projected; submarines, 14, and 20 under construction. This constitutes in size and effectiveness the second fleet in the world, but both Germany and Russia are increasing their fleets at a much faster rate than France. See MANŒUVRES, MILITARY AND NAVAL.

Finance.—The ordinary revenue of France is derived principally from state monopolies and factories, and direct and indirect taxation. According to the amended budget for 1902 the revenues were placed at 3,604,561,268 francs and the expenditures at 3,604,415,197 francs. Of the various sources of revenue the indirect taxes contributed the largest amount, 2,139,698,600 francs. The principal items of expenditure were: Payments on public debt, 1,243,425,746 francs; war, 716,700,000 francs; marine, 312,097,951 francs; public works, 229,994,610 francs; and colonies, 120,598,455 francs. The budget estimates for 1903 as submitted to the Chamber on October 14, 1902, by the new finance minister, M. Rouvier, included proposals for the expenditure of 3,500,000,000 francs, with estimated receipts of 27,000,000 francs less. To meet the expected deficit M. Rouvier looked to the saving in interest resulting from the conversion of the 3½ per cent. *rentes* into 3 per cents., which was effected in 1902, to the cessation of the redemption of National Savings Bank bonds, to the sum received from the Chinese indemnity, and the suspension of the annuity to school funds. On January 1, 1902, the public debt of France approximated 30,096,632,622 francs, of which 22,001,445,642 consisted of 3 and 3½ per cent. *rentes*.

Agriculture and Industries.—The agricultural products of France constitute one of its greatest sources of wealth, over 70 per cent. of its area being under crop or grass. It is the largest wheat-growing country in Europe, the product of this grain amounting in 1901 to 301,327,988 bushels, and in 1902 being variously estimated at between 355,000,000 and 383,000,000 bushels. Other grains in order of importance are oats, rye, barley, and buckwheat. Potatoes (122,541,230 quintals in 1900), sugar and other beets, flax, hemp, tobacco, and grass and hay (160,743,459 quintals in 1900) are also important products. France leads the world in the production of wine, the output in 1901 amounting to 1,275,197,308 gallons. The production of cider in the same year reached 280,144,920 gallons. The silk industry gives employment (1900) to 136,214 persons; the production of cocoons being 9,180,404 kilogrammes. There are mines of coal, iron, copper, lead, silver, and antimony, the mining industry employing over 156,000 workers. The coal production in 1900 amounted to 32,721,562 metric tons, and the production of pig-iron to 2,714,298 metric tons. The total value of the product of all metalliferous mines in 1899 was 460,366,671 francs; of quarries, 243,428,986 francs. Of the manufacturing industries the textile factories are of the

greatest importance, but manufactories of chemicals, paper, leather goods, and jewelry are also numerous.

Commerce.—The imports of France, which consist largely of textiles and tissues, food-stuffs, machinery, metals and oils were valued in 1901 at 4,715,000,000 francs, against 4,698,000,000 francs in 1900; of these, raw products constituted the bulk of the value, amounting, in 1901, to 3,124,000,000 francs. The exports increased from 4,109,000,000 francs in 1900 to 4,166,000,000 francs in 1901. The values of the principal items of export in 1900 were as follows: Textiles, 659,700,000 francs (of which silks constituted a value of 258,100,000 francs; woollens, 227,200,000 francs; and cottons, 174,400,000 francs); wine, 227,900,000 francs; raw wool and yarn, 201,700,000 francs; small wares, 185,000,000 francs; linen and cloths, 136,100,000 francs; and raw silk and yarn, 135,700,000 francs. The subdivisions of exports in 1901 were food-stuffs, 778,000,000 francs; raw materials, 1,091,000,000 francs; and manufactured articles, 2,297,000,000 francs. The predominance of manufacturing in the industrial life of France is readily noticeable in the fact that while raw products constitute the bulk of the imports, manufactures make up the bulk of the exports. The countries furnishing the largest amount of imports in order of importance according to the value of the trade are: Great Britain, United States, Germany, Belgium, Argentina, Russia, and Spain. The order of importance of countries receiving exports is Great Britain, Belgium, Germany, United States, Switzerland, and Italy.

Communications.—The length of standard-gauge railways open for traffic on January 1, 1902, was 23,880 miles, which included a single state line of 1700 miles. The private lines were constructed almost entirely on concessions by the provisions of which the lines become government property in time. In addition to the standard gauge roads there are in operation 2970 miles of narrow gauge road and 2319 miles of tramways.

HISTORY.

The Spring Elections.—The last session of the old Chamber of Deputies was held on March 30, 1902, and immediately after adjournment the campaign for the election of the new chamber was opened. The principal party groups presenting candidates were divided primarily into supporters and opponents of the Waldeck-Rousseau ministry. The most important group among the supporters of the ministry were the Ministerial Republicans who had behind them the prestige of the leadership of M. Waldeck-Rousseau with the record of the longest premiership in French history, and the united support of the official office-holding body throughout the country. Also to be classed as Ministerialists were the Radical Republicans led by M. Brisson, M. Combes, and M. Bourgeois; the Ministerial Socialists under the lead of M. Jaurès and represented in the cabinet by M. Millerand, the minister of commerce; and the Radical Socialists. The opposition was composed of various groups bound together only by common hostility to the ministry. Of these anti-ministerial groups the best organized and most effective was that known as the anti-Ministerial Republicans, or Progressives, who look to former Premier Méline as their leader. With them also were aligned the Guedist Socialists (or Reds), whose ideal of government is the commune, the incongruous and disorganized factions known roughly as Nationalists, and the Reactionaries. The first balloting occurred on April 27, and the result showed second ballots to be necessary in 175 constituencies. The results in Paris augured ill for the success of the ministry, but the provincial ballotings were so overwhelmingly in favor of the Ministerial candidates as to assure a decisive government victory. Out of a total of 8,863,727 votes cast, the Ministerialists polled a total of 5,198,193 against a total of 3,352,895 cast by the opposition. 'To the Ministerial vote the various groups contributed as follows: Ministerial Republicans, 2,029,874; Radicals, 1,734,790; Radical Socialists, 715,690; and Ministerial Socialists, 717,839. The votes of the anti-Ministerial groups were made up as follows: Anti-Ministerial Republicans, 1,103,576; Nationalists, 1,160,621; Reactionaries, 943,960; and Guedist Socialists, 144,738. In Paris, where the vote was 20 per cent. heavier than at the preceding election, occurred the worst defeat ever sustained by the government in the metropolis. Not a single Ministerialist was returned, but instead 8 Nationalists, 6 anti-Ministerial Socialists, 5 anti-Ministerial Republicans, and 3 Reactionaries. Estimates based on pre-election pledges arranged the party affiliations in the new chamber about as follows: Ministerial Republicans, 111; anti-Ministerial, 99; Radical Republicans, 129; Radical Socialists, 90; Nationalists, 59; Reactionaries, 50; Ministerial Socialists, 43; and Guedist Socialists, 6. The total Ministerial majority after the second balloting was set at 88.

The New Ministry.—On May 20, 1902, it was announced that M. Waldeck-Rousseau, considering that his policy had been sustained by the country as a result of the election had determined to resign on the assembling of the new chamber. Moreover, it was said that he considered that his mission had been accomplished, and that he ought now to consider the state of his health, which was anything but good.

In some quarters it was suggested that he, being an aspirant for the presidency, did not care to risk losing the reputation that his unusually long and successful career as premier had brought him. On June 3 he formally tendered his resignation to the president. President Loubet on June 4 held a long consultation with M. Léon Bourgeois, the newly elected president of the Chamber, with the result that he called on M. Henri Brisson, the former premier and Radical Republican leader, and requested him to form a new cabinet. M. Brisson refused to attempt it himself, but suggested that the president call upon M. Combes, a leading Radical Republican senator. This advice President Loubet accepted, and on June 7 M. Combes announced his cabinet as follows: Premier, minister of the interior, and minister of public worship, M. Combes; justice, Senator Vallé; finance, M. Rouvier, one of the foremost of French financiers; foreign affairs, M. Delcassé, who held that portfolio in the Waldeck-Rousseau cabinet; marine, M. Maruéjouls, a deputy who was minister of commerce in the Brisson cabinet (1898); public instruction, Senator Chaumié; public works, M. Camille Pelletan, a deputy; colonies, M. Doumergue; war, General André, who held the same portfolio in the Waldeck-Rousseau ministry, but was prevailed upon to continue in the new cabinet until his proposed military reforms could be enacted; commerce, M. Trouillot, a deputy, formerly minister of colonies in the Brisson cabinet; agriculture, M. Mougeot. The new cabinet was considerably more Radical in its tendencies than that of M. Waldeck-Rousseau. Of its membership M. Pelletan and M. Doumergue represented the Radical-Socialists, M. Mougeot, the Radical Left, and Premier Combes and most of the other members, with the possible exception of M. Rouvier and General André, were looked upon as Radical Republicans.

The Opening of the New Chamber.—The new chamber assembled at Paris June 1, 1902. M. Paul Deschanel, who had presided over that body for the last four years, was the candidate of the Waldeck-Rousseau Republicans for the presidency. The Radical Republicans, however, who were successful in electing a larger number of deputies than any other Ministerial group, presented the name of M. Léon Bourgeois. The choice of president of the French Chamber, like that of the speaker of the British House of Commons, is supposed to be non-political, and the opposition seldom presents a candidate of its own. In the present instance, however, enough anti-Ministerial Republicans, who still feel bitter toward all of the Waldeck-Rousseau partisans, united forces with the Radicals and elected M. Bourgeois over M. Deschanel by a vote of 303 to 267. Two Radicals, M. Etienne and M. Maurice Faure, were elected vice-presidents. On June 10, M. Bourgeois assumed the chair in a speech in which he declared his intention of acting as an arbiter and not as a partisan. On the same day the new premier, M. Combes, delivered his first speech. He took occasion to laud the Waldeck-Rousseau policy of attempting to unite all factions of the Republican party and declared that he would follow it. He declared himself favorable to the Russian alliance, favored the reduction of the term of military service to two years, emphasized his desire to effect a radical reduction in national expenditures, and decried the attempts to confound the cause of the Catholic Church with that of the religious organizations aimed at by the Associations Act. Two days later came the first test of the new ministry's strength when a friendly interpellation of M. Brussière, brought out a favorable vote of 329 to 124.

The Enforcement of the Associations Law.—The enforcement of the act passed in June, 1901, to curb the power and restrict the activities of the religious associations and congregations, whose strength had been manifested anew in the course of the Dreyfus case, and in the revival of the Nationalist movement succeeding it, was the principal event in the domestic history of France in 1902. During the early months of the year the impression gained ground that although the law had been placed on the statute books by the Waldeck-Rousseau minstry, the premier himself was not the man to insist on its enforcement to the letter. Radical Republicans, like M. Bourgeois, and Ministerial Socialists like M. Jaurès, showed their dissatisfaction, and made it clear that in their support of the ministerial measure they had in mind its enforcement in such a way as to secularize practically all the church schools. They purpose to destroy clerical influence. Such an outcome they realize will be very unlikely of fulfillment if the present large proportion of the students receive their education in Roman Catholic schools. Against the Jesuits, Assumptionists, Benedictines, and Carmelites the measure was enforced with considerable strictness in the early months of the year, with the result that many of them were driven from the country. In many cases, however, the attempt was made to evade the provisions of the law providing for the control and direction of the conventual schools by reconstituting them under secular auspices. This evasion could only be met by the slow process of the courts. With the resignation of Waldeck-Rosseau and the acceptance of the premiership by M. Combes, whose Radicalism has always run strongly in anticlerical lines, a decided change occurred. In his opening address to the new Chamber in June, the new premier significantly declared that the act should be resolutely

and rigorously enforced, and his actions did not belie his words. On July 4 at the close of a fierce debate in which the ministerial policy had been bitterly attacked, the Chamber, by a large majority, voted approval of the determination of M. Combes to secure a definite victory for secular justice over monastic disobedience. On July 11, the day before the session ended, a tumultuous scene was precipitated by a vehement assault of M. Aynard on the ministry, which was answered by M. Combes in person. The latter was continuously interrupted by shouts of "à bas le ministre proscripteur," and quiet was restored only by the chamber official guards. Shortly after adjournment an official circular embodying M. Combes's ideas of enforcement was published. It was served upon 76 schools in Paris and over 2000 in the provinces, and ordered the closing of all unauthorized schools by the police unless closed by July 23. The Catholics, led by Cardinal Richard of Paris, protested vigorously but without avail. The ministerial orders were carried out, and all France was stirred and excited as a result. Even some supporters of the measure disapproved of M. Combes's harshness. In Paris, where the Nationalists, led by François Coppée and Jules Lemaitre, joined forces with the Clericals, the resistance assumed a political aspect, and was further complicated by a Socialist agitation that resulted in the storming of a monastic school in the Rue Furstenburg, and a clash between Socialist and Clerical mobs in the Latin Quarter. Coppée and other leaders were arrested. In Brittany, where the opposition was fiercest, it was fanatically religious. Having forced the submission of most of the conventual institutions the government turned its attention to those who had opposed the carrying out of its orders. First of these to suffer were army officers, who had been called upon by local authorities to assist them in closing the schools, but had refused. M. Combes declared in cabinet meeting that the army opposition was "plainly and violently royalist" and ordered several courts-martial of more prominent officials. At Lanouen Lieut-Col. de St. Rémy was tried by court-martial for refusal to obey a requisition of the prefect of Morbihan. He admitted his guilt, but declared that he had to choose between the judgment of a court and the judgment of the Lord. The court found him guilty, not of a refusal to obey a military order, but merely a civil requisition, and sentenced him to one day's imprisonment, but the cabinet, feeling that more strictness was demanded to make its policy effective, struck his name from the army list. Major Ladurie at Nancy, after having been practically exonerated by the court-martial, was likewise dismissed from the army by cabinet orders. The Radicals and Socialists were incensed at the leniency of the courts, which they declared involved a military revolt against civil authority, and M. Jaurès proposed the abolition of courts-martial as anomalies in a republic. The army, on the other hand, was irritated at the way the ministry by over-riding the court's verdict passed a censure on military justice. The Chamber, in October, sustained the ministerial measures by a vote of 329 to 233, and Premier Combes presented a bill empowering the government to repress attempts to re-open schools once closed—a point not covered by the original act. Church officials who had shown opposition to the enforcement of the act were punished during the fall months. Hundreds of priests were deprived of their stipends and the salaries of several bishops and of Cardinal Perraud of Autun were suppressed.

Labor Troubles.—During the autumn of 1902, France, like the United States, was the theatre of a coal strike of serious proportions. The strike had its beginnings in a futile attempt at a general strike started by the miners of Montceau in 1901 on their demand for an eight-hour day, for a two-franc per day pension after twenty-five years' service without limit as to age, and for a minimum wage. The miners in the departments of the North and Pas-de-Calais did not then accept the programme of the miners of Montceau with enthusiasm, and the strike fell through. Later in the year the government agreed upon a limited pension scheme and proposed a plan for the gradual reduction of the hours of labor. This did not satisfy the miners, however, and at a congress of miners at Alais in March, 1902, a general strike was determined upon. The actual declaration of the strike was not promulgated until September after a new congress at Commentry had favorably passed upon it, and drawn up a manifesto in which four demands were made. These were: (1) A pension of two francs per day after a period of thirty years' service, providing the worker was fifty years old; (2) an eight-hour day; (3) the establishment of a minimum wage; (4) a general advance in salaries. The first two demands the miners acknowledged had been satisfactorily arranged for the present and were not pushed. On the third the government and mining companies, however, were obdurate, and on the fourth—a matter which concerned only the companies—the employers declared that the low price of coal rendered an increase at the present time absolutely impossible. But it was for this concession that the miners were most insistent. The very different conditions governing the work in the coal fields in various parts of the country, made it evident very soon after the order for a general strike went into effect, that the various bodies of miners were not working in common, and that for lack of a single controlling spirit the attempt would be likely to fail, and that the struggle would

develop into a simple struggle between disconnected companies and their workers. This, in fact, was the result. Instead of the "great rising of the brotherhood of workers" which the labor leaders had counted on, the strike resolved itself into a series of disconnected disputes which were settled without common accord and in entirely different manners. On November 2, 1902, a conference was held between miners and representatives of some of the companies at which, after considerable discussion, the latter agreed to the miners' demand that the questions at issue be submitted to arbitration. Up to that time it was said that 100,000 miners were on strike, that much property had been destroyed, and that the cost of the strike had amounted to about 30,000,000 francs. In many districts troops had to be called out to preserve order. The Chamber of Deputies, by a formal vote, requested Premier Combes to intervene, and his influence is said to have been exerted in obtaining the consent of the companies to accept arbitration. Toward the middle of November the decisions of the arbitrators in the various districts began to be announced, and a storm of protest and reproach was raised by the strikers when it was found that almost without exception the findings were unfavorable to their contentions. At a miners' conference hurriedly called at Arras, it was voted to continue the strike, but in many districts the miners were already gladly returning to work. This act of refusing to accept the decision of the arbitration, which they had proposed, lost the miners much sympathy, and at a second miners' congress called at Lens, they rescinded the action of the Arras meeting and agreed to abide by the decisions of the arbitrators. By the first week in December, 1902, practically all the striking miners had returned to work. A strike of shipping and dock-laborers at Marseilles in December, 1902, which resulted in considerable disturbance, had not been settled by the end of the year.

Foreign Affairs.—Little of importance in the foreign relations of France that could be considered as a new departure occurred during 1902, but on the whole the position of the country in international politics can be said to have been considerably strengthened. Not in many years were the relations between France and Great Britain so cordial as during 1902, a fact especially exemplified in the growing sentiment, which found expression in high circles on both sides of the Channel, looking toward the negotiation of a permanent treaty for the arbitration of all existing and future disputes. Early in the year a satisfactory understanding was reached with Italy in regard to the rights of the two nations in the Mediterranean with particular reference to the occupation of Tripoli and Tunis. (See ITALY, paragraph Foreign Relations.) With Spain, too, the existing friendship was strengthened. The most important event in international politics in which France took a part consisted in the reaffirmation and restatement of the Franco-Russian alliance announced immediately after the promulgation of the Anglo-Japanese Treaty (February). In May the visit of President Loubet and M. Delcassé to St. Petersburg afforded an opportunity for the expression of friendship by both President and Czar. In September the Marquis de Montebello, the French ambassador, was dismissed from office, apparently because of favors shown by him to Gen. Louis Bonaparte, now an officer of the Russian army. The dismissal, however, had no bearing whatever on the relations of France and Russia. During the summer diplomatic relations were resumed with Venezuela.

For the Franco-Siamese Treaty, see SIAM; see also INTERNATIONAL RELATIONS; ARBITRATION, INTERNATIONAL; ROCHAMBEAU STATUE.

The Speeches of M. Pelletan.—Two speeches of M. Camille Pelletan, the new minister of public works, delivered in September, 1902, at Ajaccio, Corsica, and Bizerta, Tunis, attracted considerable attention in the international press, but seem to have been taken more seriously in France itself than anywhere else. At Ajaccio he talked about the need of fortifying Corsica as a link between France and her African protectorates and provinces, and as a bulwark against possible Italian attack. Then, crossing over to Africa, he spoke at Bizerta to the following effect: "We do not say we want to make the Mediterranean a French lake . . . but part of the Mediterranean is French and will always remain French. With this powerful rampart, so well situated both for defense and attack, and with Corsica and Tunis, we can hold the open door between the two halves of the Mediterranean in spite of Malta and Gibraltar." Coming from a member of the French ministry these utterances were undoubtedly indiscreet, and Paris was greatly excited lest Great Britain and Italy should take offence at them. Premier Combes, evidently looking at it in this light, took an early opportunity to declare publicly that the views expressed by M. Pelletan were in no way to be considered official or semi-official expressions of those entertained by the French government. The English and Italian press treated the affair as of little consequence, and the German papers called it "champagne talk."

The Conscription Bill.—One of the first measures brought forward by the Combes ministry was a bill introduced early in the year to reorganize the existing conscription system by a reduction of the term of active service required "with the colors" from three to two years. The term of service has been modified three times within the

past twenty years, and the present three-year system, adopted in 1889, has never been considered satisfactory from any point of view. In 1871 the annual contingent of conscripts was 293,000; under the existing arrangement it is 225,000. In Germany, on the other hand, the contingent increased from 330,000 in 1871, to 450,000 in 1901, a gain of 120,000 as compared with a loss in France of about 68,000. Moreover, under the present liberal system of dispensations, exemptions, and substitutions, about 65,000 of the annual conscription of 255,000 serve only one year, leaving two-thirds of the conscripts to do all the actual service. The bill introduced in parliament seeks to remedy this evil, and by reducing the time of service to two years and practically doing away with the system of exemptions, to make the entire system more uniform and effective. This, its advocates declare, would not mean a diminution in the actual force but a very substantial increase. The bill had the endorsement and support of General André, the minister of war, but was opposed by several eminent authorities on military affairs, including General de Galliffet, who asserted that while Germany could advantageously rely on a two-year term of service because of her high birth-rate, France could not. Counter proposals of various sorts were proposed by the opponents of the act, and the bill passed the Chamber, but by the end of the year had not received the Senate's assent.

Various Legislative Measures.—On March 18, 1902, the Chamber voted 298 to 237 that future chambers should last for six years instead of four. The ministry supported the measure. The innovation was looked upon as a most important one, as, if it received the assent of the Senate and became a law, it was expected that it would be likely to have the effect of increasing the eagerness of candidates, solidify the parties, and tempt the president to seek the dissolution of the Senate. It would also tend to economy by stopping the very common custom of deputies of bribing their constituencies with public works. The opponents of the measure declared it to be a high-handed usurpation of constitutional power on the Chamber's part, and when, in the Senate, the committee to which it had been referred agreed to oppose it, Premier Waldeck-Rousseau, while declaring that he favored the change, announced that discussion of it would be postponed for the present. M. Combes, himself a member of the Senate, upon assuming the premiership studiously neglected to take any notice of the measure whatever. In July, 1902, M. Rouvier, the new finance minister, introduced a bill that will have the effect of placing the entire funded debt of France on a 3 per cent. basis. The measure, which passed both houses with little opposition, provides for the conversion of all 3½ per cent. *rentes* to 3 per cents. by a system of graduation, the conversion to become effective on November 1, 1902, when the reduction from 3½ per cent. to 3¼ per cent. was to be made, to be finally reduced to 3 per cent. four years from that date. The conversion, it was estimated, would result in a saving of over 30,000,000 francs a year. Other legislation of importance passed during 1902 were an act providing for an expenditure of 600,000,000 francs for public works, largely canal and river and harbor improvements, and an act providing for a system of bounties to French shipping, and extending the application to foreign-built ships owned in France. In December the Chamber passed the sugar duty bill and ratified, without a division, the Brussels Sugar Convention.

Other Affairs.—In January, 1902, a change in the method of management of the Comédie Française was announced. Hitherto the theatre has been governed like a miniature republic, and has received a regular annual subvention from the government. The control and the choice of plays have been vested in a committee of actors and actresses, who participated in the profits. Early in the year, the minister of public instruction, under whose supreme control the theatre has been placed, issued an order abolishing the governing committee, and placing the selection of the plays in the hands of the administrator. In August an important new administrative department was created consisting of a consulting committee for the defense of the colonies under the joint supervision of the ministries of war, colonies, and marine. It is to be composed of three major-generals from the colonial corps, one major-general of the army general staff, one rear-admiral from the naval general staff, the war office head of the bureau of colonial troops, and the chief of the military bureau of the colonial office.

On September 18, 1902, it was announced at Washington that the governments of France and the United States had agreed to extend for one year, from September 24, the time limit for the ratification of the commercial reciprocity convention negotiated and signed on July 27, 1899.

FRANCIS, David Rowland, president of the Louisiana Purchase Exposition, was prominent in 1902 for his energetic and successful work in making the exposition ready for its opening in 1904. Mr. Francis was born near Richmond, Ky., October 1, 1850, and graduating from Washington University, St. Louis, in 1870, he entered business and has at present large interests in various corporations in the city, of which he was mayor from 1885 to 1889. From 1896 to 1897 he was secretary of the Interior. He was elected president of the Louisiana Purchase Exposition by a con-

vention of delegates from the various States and Territories formed from the purchase of 1803, which assembled in St. Louis on January 10, 1899. Mr. Francis has adopted all usual and many unusual forms of press advertising to arouse in the people of the country a great enthusiasm for the exposition and in its interest visited many cities in this country and abroad for the purpose of personally soliciting exhibits.

FRATERNAL ORGANIZATIONS, a title applied to those secret societies which maintain a death, sickness, or accident fund for their members. Many of these societies are under the surveillance of the State insurance departments, which exact from the governing bodies such statistical information as tends to check betrayal of trust. The following are among the principal organizations of this kind in the United States:

	Date of Foundation.	Membership.	Benefits Disbursed Since Organization.
American Legion of Honor	1878	6,386	$42,992,800
Ben Hur, Tribe of	1894	54,636	1,347,167
B'nai B'rith, Independent Order of	1843	30,000	450,000
B'rith Abraham, Order of	1859	40,056	1,631,187
Catholic Benevolent Legion	1881	38,296	14,184,698
Catholic Knights of America	1877	24,000	11,517,418
Druids, United Ancient Order of	1839	19,485	994,162
Elks, Benevolent and Protective Order of	1868	130,000	1,250,000
Foresters, Ancient Order of	1836	38,910	116,500,000
Foresters, Independent Order of	1864	210,000	9,641,476
Foresters of America	1874	200,000	12,000,000
Free Sons of Israel, Independent Order of	1849	15,000	7,165,000
Good Fellows, Royal Society of	1882	6,500	4,726,916
Heptasophs, Improved Order of	1878	52,825	6,975,019
Hibernians in America, Ancient Order of	1836	139,453	.....
Home Circle	1879	5,600	2,424,126
Irish Catholic Benevolent Union	1869	14,000	2,169,579
Knights and Ladies of Honor	1877	63,000	78,094,864
Knights of Honor	1873	54,029	19,000,000
Knights of Malta	1889	27,000	.....
Knights of St. John and Malta	1883	5,000	551,135
Knights of Golden Eagle	1873	72,597	231,794
Knights of the Maccabees	1883	294,000	14,159,246
Ladies' Catholic Benevolent Association	1890	77,425	2,224,459
Mystic Circle, The Fraternal	1884	15,908	1,962,009
National Provident Union	1883	3,117	1,962,876
National Union	1881	63,757	15,825,968
New England Order of Protection	1887	31,854	3,213,000
Pilgrim Fathers, United Order of	1879	22,345	4,564,080
Rechabites, Independent Order of	1836	275,000	795,000
Red Men, Improved Order of	1834	269,401	17,946,007
Royal Templars of Temperance	1870	23,641	7,932,750
Scottish Clans, Order of	1878	6,885	750,000
United American Mechanics, Order of	1845	44,730	.....
United American Mechanics, Junior Order of	1853	112,000	4,288,920
United Workmen, Ancient Order of	1868	437,499	119,037,800
Woodmen of America, Modern	1883	701,655	27,508,384
Woodmen of the World	1891	317,000	11,570,000

FREE BAPTIST YOUNG PEOPLE, UNITED SOCIETY OF, an international organization, comprising all the young people's societies in the Free Baptist denomination, established in 1888. It has (1902) a total membership approximating 23,000, included in 450 young people's societies, 150 junior societies, and 5 intermediate societies. In the past year some 50 new societies were formed; about $3000 was contributed for foreign missions, besides various amounts for the work at home. President, E. P. Metcalf, Providence, R. I.; general secretary, Harry S. Myers, Hillsdale, Mich.

FREEMASONS, represented by fifty-seven grand lodges in the United States and British America, had a membership of 901,968 in 1902. After deducting suspensions, withdrawals, etc., this is a gain over 1901 of 24,206. These grand lodges are in affiliation with the English grand lodge, of which the Duke of Connaught is grand master, and the grand lodges of Ireland, Scotland, and a number of other countries. They are not affiliated with the Grand Orient of France. Freemasons are under the ban of the church in Roman Catholic countries.

FREE METHODIST CHURCH was established in 1860. It now has 1041 ministers and 29,795 communicants in the United States, Canada, and foreign fields, more than 28,000 being in the United States. There are 1067 churches with property valued at $1,257,060, exclusive of 522 parsonages valued at $372,125. The denomination conducts foreign missionary work in Africa, India, and Japan, the mission churches numbering 8, with 348 adherents, 288 of whom are communicants. Twenty-one out-stations are maintained, employing 23 missionaries besides a number of

native workers. Educational property valued at $100,000 is held by the college and six seminaries under the auspices of the church. The denominational headquarters are in Chicago, Ill., the location of the publishing house.

FRENCH CENTRAL AFRICA includes the three native states of Wadai, Kanem, and Bagirmi, which by the Anglo-French treaty of March 21, 1899, were recognized as being within the French sphere of influence. The areas and populations are not definitely known, but the following estimates have been made: Wadai, 150,000 square miles and 1,000,000 inhabitants; Kanem, 30,000 and 100,000; Bagirmi, 65,000 and 1,000,000. The people are mostly Mohammedans. A French resident is stationed at Massenia, the capital of Bagirmi. In March, 1902, it was reported that a revolution had taken place in Wadai, the strongest native state in this part of Africa, the Sultan Ahmed, overthrown after a fierce battle, being succeeded by Mohammed Dudu, son of the Sultan Yusef. For the Senussi movement, see FRENCH SOUDAN.

FRENCH CONGO, a colony of France in West Africa, extends from the coast, between Rio Muni (Spanish) and Cameroon on the north and west and the Congo Free State on the south and east, to Wadai (one of the central African states in the French sphere) and the Egyptian Soudan. The area is estimated at upwards of 450,000 square miles and the population at from 8,000,000 to 15,000,000. The colony, which is administered by a commissioner-general resident at Libreville, is one of the least developed of the West African dependencies and requires an annual subsidy from France. In 1900 the imports were valued at 10,555,000 francs (4,879,000 francs from France and French colonies), and the exports 7,540,000 francs (2,610,000 francs to France and French colonies). The franc is worth 19.3 cents. Of the exports, rubber amounted to 3,018,000 francs, ivory 2,927,700, and various woods 1,150,000.

In July, 1902, the French minister for the colonies abolished the post of government commissioner in the region of Lake Tchad and placed the territory as a province under the administration of the French Congo. Considerable trouble arose in 1902 on account of the determination of the French to enforce certain regulations that had been recently adopted, practically closing the colony to all but French trade. Certain British traders, who for years had carried on a large part of the Congo commerce, were forbidden to pay more than a fixed price for native products, while the natives were ordered to sell their produce to certain concessionaires to whom the French authorities had made over large tracts of land. For violation of the law excessive fines were imposed upon the English merchants, who through the Liverpool chamber of commerce addressed a protest to Lord Lansdowne, the British secretary of state for foreign affairs, asking intervention. On account of the new law trouble recurred in the summer of 1902 with the natives in the Ngounie district. The French destroyed seventeen towns and a number of plantations. In November it was stated that trade was in a very bad condition and the revenue declining, while the people were discontented, in marked contrast with the French West African colonies that have a practically free-trade system.

FRENCH GUIANA, a colony of France on the northern coast of South America, has an estimated area of about 30,500 square miles, and a population, including about 7000 convicts and *relégués*, estimated at about 30,300. The capital and only seaport is Cayenne. The colony is administered by a governor and is represented in the French chamber by one deputy. The local budget for 1901 balanced at 2,692,818 francs, while a subvention provided in the French budget for 1902 amounted to 7,086,000 francs, of which 5,887,930 francs were for the penal establishment. (The franc is worth 19.3 cents.) The principal industry is gold mining. In 1901 and 1902 the rich gold deposits (placer) in the Inini River district attracted many prospectors. There is little agriculture. The reported values of imports and exports in 1900 were 9,767,228 francs and 6,583,513 francs respectively; in 1901, 12,219,161 and 8,775,637 respectively. Included in the exports was gold valued at 6,343,534 francs in 1900 and 7,966,161 francs in 1901. The foreign trade is mostly with France.

FRENCH GUINEA, a French colony in Africa forming one of the divisions of French West Africa (*q.v.*) lies between Sierra Leone and Portuguese Guinea on the Atlantic Ocean. It comprises in addition to the protectorate of Futa Jallon, several inland districts, the whole having an area of 95,000 square miles and an estimated population of 2,200,000. The capital is Konakry. The colony is administered by a governor and the country divided into circles for purposes of local administration. The budget for 1901 balanced at 6,895,000 francs. The imports in 1900 amounted to 14,275,452 francs, and the exports to 9,779,772 francs. The chief exports were rubber, 7,322,000 francs; cattle, 1,000,500 francs, and palm kernels, 477,000 francs. Rice, millet, earth-nuts, and gums are also produced. A railroad is being constructed from Konakry to the Niger, in June 93 miles of earthwork had

been completed and on November 30 the first section of 10 miles from Konakry to Simbaya was opened.

FRENCH LITERATURE. *History and Biography.*—The noteworthy historical works which the year 1902 saw added to French literature may be enumerated in comparatively little space. Not only are critical monographs few in number, but the vogue of the historical document—letters, diaries, memoirs—which was a prominent feature of the preceding years, has largely abated. Single volumes of several important works were issued during the year. Prof. Alphonse Aulard, of the University of Paris, who is reputed to be the greatest living authority upon the French Revolution, added a third volume to his series of studies upon that period, *Etudes et Leçons de la Révolution Française.* The topics treated range from the vital issues of the great struggle down to the most subordinate details of the life of the times, yet one and all bear the stamp of the same inflexible and exhaustive method. The third volume has also appeared of *La Société Française du XVIème au XXème Siècle,* the ambitious series in which M. Victor du Bled proposes to cover the history of French society, and which is already recognized as authoritative in character and entertaining in style. The new volume deals almost exclusively with the political rôle of the French noblesse—a rule which "seems to be finished and may be treated as impartially as the Roman Senate or the Venetian Signoria." M. A. Molinier is the author of an important source-book, *Les Sources de l'histoire de France, depuis les Origines jusqu'en 1789.* When the first volume appeared its value was at once recognized. The second volume is characterized by the same abundance of documents, genealogies, chronicles, local and general; in short, all sources of history indicated, together with the essential data regarding their origin and authenticity. An interesting monograph bearing upon mediæval history is Gustave Decoudray's *Les Origines du Parlement de Paris et la Justice aux XIIIème et XIVème Siècles.* The author traces the origin of the Parliament of Paris, its constitution, the union of its separate sessions into a single annual term; in short, its whole organization as a court of justice, reserving its administrative and political functions for a second volume. Napoleonic literature, after enjoying a remarkable period of fertility, has once more fallen into neglect. René Stourm, already known as author of a masterly contribution to economic history, *Les Finances de l'Ancien Régime et de la Révolution,* continues the same line of investigation in *Les Finances du Consulat,* showing the same erudition and painstaking accuracy. *Rome, Naples, et le Directoire,* by the Baron Joseph du Teil, is a monograph tracing the diplomatic history of the campaign of 1796-97 in the south of Italy. It is conscientiously written and carefully documented, and throws interesting light upon Napoleon's political methods and aspirations at this time. A popular history of Napoleon, by Désiré Lacrois, has lately appeared, in which truth and legend are mingled with curious impartiality. A popular history of very different calibre has been devoted to the Franco-Prussian war, by Paul and Victor Margueritte. Few novelists have ever studied history more conscientiously than these two brothers did in preparation for their novels *Le Désastre* and *Tronçons du Glaive;* and in their brief *Histoire de la Guerre de 1870-71,* they reveal a surprisingly intimate knowledge of the movements of the armies, the separate engagements, and have analyzed with a rare perspicacity the causes leading to the final defeat. A lucid and penetrating study of Belgium, since 1830, from the social as well as the political standpoint, *La Belgique Morale et Politique,* comes from the pen of Maurice Wilmotte, already known as author of a recent important study of the Congo Free State.

Among the volumes which stand upon the border line between history and biography, a certain number appear annually, devoted to the lives of Frenchwomen whose exceptional careers and personalities have added much to the romance of history. To this class belongs *Les Infortunes d'une petite-fille d'Henri IV.,* by M. E. Rodocanachi. The contemporaries of Marguerite of Orleans, who was wife of the Grand Duke of Tuscany, deliberately threw a veil over the escapades of this princess who seems to have inherited something of her illustrious grandfather's faculty for amorous adventures. The Tuscan chief of police, however, kept a private journal, and upon this the present piquant and dramatic recital was based. Casimir Stryienski, who has already shown his fitness to handle the material of feminine biography, in his vivid and delicate portrayal of the Countess Potocta, has contributed a careful study of Marie-Joseph de Saxe and the court of Louis XV., under the title, *La Mère des trois derniers Bourbons.* This exceptional woman the author sums up as "an eighteenth-century princess who remained faithful to her husband, who occupied herself with her children, like a simple *bourgeoise,* and endured without complaint a long life of sorrows and mourning. Such was the mother of Louis XIV., Charles X., and Louis XVIII." *Louis XV. et Marie Leczinska* is the title of a readable volume by Pierre de Nolhac, who has made good use of the romantic material which his subject afforded.

Military biography and memoirs, although less in evidence than usual, still had

some representation in 1902. *Le Maréchal de Luxembourg et le Prince d'Orange* is the title of a volume by Pierre de Segur, which really forms a sequel to his earlier work, *La Jeunesse du Maréchal de Luxembourg*. For ten years prior to 1678 this intrepid adversary of William of Orange tried in vain to check the latter's growing influence. On the field of battle he almost invariably was successful, but orders from the court or from Louvois were sure to follow which would upset his plan of campaign. The history of these battles, told in the utmost detail, fill the volume. *Le Maréchal Moncey, Duc de Conegliano* is the record of a curious and interesting personage who in his time played many parts. Soldier and captain under Louis XVI., general inspector of gendarmerie under the consulate and empire, minister of state and peer of France under the Restoration, he found a zealous and conscientious biographer in his descendant, the late Duke of Conegliano who did not live to see the book in print. In Charette, one of the most famous of the Chouan leaders in Brittany, M. René Bittard des Portes has found material for a monograph, *Charette et la Guerre de La Vendée*, based almost wholly upon hitherto unpublished documents. The *Souvenirs du Lieut.-General Vicomte de Reiset*, which have been for some time in course of publication, edited by his grandson, are now brought to a close with the third volume covering the years 1814-36, and containing some curious details of the "Hundred Days," as well as of the revolution of 1830. *Souvenirs d'un Caporal de Grenadiers*, is a unique little volume edited by Comte Fleury and written by a French soldier who was a member of certain troops who, in 1808, were declared prisoners of war and deported to the little island of Cabrera, in the Balearic group, where they were decimated by hunger and disease. The author of these memoirs was one of the lucky few who escaped. In writing *Le Maréchal Ney*, the Comte de la Bedeyère has not attempted to write a biography, but has simply gathered together notes, letters, documents relating to Ney, his family, and especially to his trial, which will be of great value to any future biographer.

Some memoirs of rather exceptional interest bear the title *Souvenirs sur Madame de Maintenon*, and are edited by the Comte d'Haussonville and Gabriel Hanotaux. By a curious coincidence, these two gentlemen became possessed independently of a manuscript copy of the unpublished letters and memoirs of Mademoiselle d'Aumale, the last and most attractive of Mme. de Maintenon's secretaries. They united in the task of collating the two manuscripts, and the Comte d'Haussonville also provided an introduction which does full justice to the charms of Mme. de Maintenon's "petite mignonne." Two volumes of youthful correspondence, possessing an intrinsic value that seldom attaches to the letters of collegians are Ernest Renan's *Lettres du Seminaire* covering the years 1838-46—the critical years during which he definitely decided to give up his studies for the priesthood—and Taine's *Correspondance de Jeunesse, 1847-53*. Taine had a fixed aversion to any public display of the personal and intimate side of his life, and forbade the publication of any letters excepting those of a purely general or speculative nature. Accordingly, out of all his correspondence, this volume, and the two which are promised to follow it, are all that the world at large is likely to have as a record of his more intimate thoughts and personality. They are interesting as already foreshadowing in their precocious dignity and formal correctness, the Taine of mature years. There are few women living to-day, in the Paris literary circles, whose memories could make more delightful and varied reading, than Madame Adam, the talented editor of the *Revue Blanche*. The first volume of her autobiography, *Le Roman de Mon Enfance et de Ma Jeunesse*, goes back to the days when she was still Mlle. Juliette Lamber, and justifies its title by showing quite literally the charm and variety of a romance. A romance in real life, about which the last word is likely never to be written—the romance of *Elle et Lui*, of George Sand and Alfred de Musset—has found a new exponent in the person of Charles Maurras, whose *Amants de Venice* is a psychological study of the familiar story, a sort of philosophy of romanticism.

Literary Criticism, Essays.—Among recent monographs upon authors, none deserves more attention than Arthur Chuquet's admirable study of the life and works of *Stendhal-Beyle*. With the exception of Edouard Rod's volume in the "Grands Ecrivains Français" series, there is no adequate biography or critical study of the "spirituel Dauphinois," and Chuquet's work written with great thoroughness and impartiality, is likely to be recognized as definitive. He admits that Stendhal's novels are "ill balanced and at times incoherent," but they reveal in many a passage his "profound observation of the human heart." It is well known that Stendhal's greater contemporary, Balzac, is the subject of a comprehensive study upon which Bourget has been engaged for many years. The public lately had an opportunity to judge of his method of treatment from some specimen pages which appeared in a number of the *Minerva*. Meanwhile the Comte Spoelberch de Louvenjoul publishes from time to time selections from his unrivaled collection of Balzac manuscripts. The latest volume, *Une Page Perdue de Balzac; Notes et Documents* contains fragments of an unfinished work, "Voyage imaginaire de Paris à Java" (1832).

Hughes Rebelle writes of *Les Inspiratrices de Balzac, Stendhal et Mérimée,* and there is a kindred volume by Jean Melia, *Stendhal et les Femmes.* André Chenier is the subject of two volumes of considerable interest. The first, by Emile Faguet, is not merely an admirable biography, but a valuable critique full of new and just estimates, of this last of the classic poets. The second volume is *André Chenier Critique et Critiqué,* by Paul Glachant. Living as he did in the transition period between classic and romantic art, Chenier assumed the right to "revise the republic of letters." M. Glachant has conceived the happy idea of extracting from Chenier's writings a sort of code of poetic laws. The second half of the work deals with the bibliography of Chenier, the history of the text, the opinions of his critics, and a host of kindred themes. *Alfred de Vigny et son temps,* by Léon Seché, is a comprehensive work, full of hitherto unpublished details, notably the chapter upon de Vigny's love for Mme. Dorval, which as the author says, "throws a beacon light over his whole life." A group of special studies upon certain classic writers should be briefly noted: *Les Epoques de la Pensée de Pascal,* by Gustave Michaut, a new and amplified edition of a work which was previously published as an introduction to the critical edition of the *Pensées* that was crowned by the Academy. *Du Sentiment artistique dans la Morale de Montaigne,* by Edouard Ruel, is a posthumous volume, the single fruit of a life of research. In the eyes of Ruel, Montaigne was fundamentally an artist—his mental and moral scope, his methods of work, his style, his very language, are "to be explained on this basis and no other." There is an introduction from the pen of Emile Faguet, who is the author of still another volume, of mingled literary and historic interest: *La Politique comparée de Montesquieu, de Rousseau et de Voltaire.* There has long been a tendency to regard these three writers as the original instigators of the French Revolution; and this is precisely what M. Faguet seeks to establish in his erudite little volume.

Literary and critical essays are less numerous than usual. Henry Bordeau has gathered together a second series of *Les Ecrivains et les Moeurs,* containing estimates of such novelists as Balzac, Stendhal, Bourget, Rod, the Brothers Margueritte, poets like Jean Moreas and Henri de Regnier, and numerous foreign writers, such as d'Annunzio, Tolstoy, Kipling, and Ruskin. *La Poesie Nouvelle* is the title of a group of twelve essays by André Beaunier, based upon the assumption that "from 1885 to 1900, a new poetry lived and flourished with an abundance of life that was surprising." Jules La Forgue, Gustave Kahn, Emile Verhaeren, Maeterlinck, and Henri de Regnier are among the poets discussed. Jean Lorrain has collected the best of his impressions of recent years upon current literary and artistic topics, into a volume which he calls *Poussières de Paris.*

Fiction.—It is scarcely five years since a French critic felt himself justified in summing up existing conditions with the phrase "Literary Anarchy." The naturalistic, psychological and symbolic schools had successively had their day, and an era of individualism had set in. It would be difficult to pick out a group of writers who then seemed more hopelessly far apart than Zola, Bourget, Anatole France, Edouard Rod, and Maurice Barrès. But in the interval a new movement has arisen, and these very writers have gradually drawn together. While preserving their individuality of method, they show in their latest volumes a community of purpose, the purpose of making serious studies of existing sociological and ethical conditions. There can be little question that Zola anticipated, and in a measure directed, this tendency, and that his last group of novels, inferior though they were to the greater part of his earlier work, exercised a potent influence on fiction on the threshold of the new century. *Vérité,* the third volume of Zola's Four Gospels, and the last volume he was destined to write, bears on its title page the date 1903; nevertheless, it logically belongs to the books of the previous year—the year of its author's death, the year of its appearance as a serial, the year when it was being widely discussed. Owing to extrinsic circumstances it is likely to have as great a vogue as any book its author wrote. While fitting into the general scheme originally outlined by Zola for his tetralogy, Vérité is more of a political pamphlet than a novel. Although cleverly modified in regard to the concrete facts, it is really a disguised report of the Dreyfus case, as Zola saw it, and the author masquerades as his own hero. The book has nothing to do with the French military circles, nor is it to any great extent a story of the law courts. In place of the army of war, he has substituted the "army of peace," the French school system, and has sought to picture the struggle going on between the state schools and the schools controlled by the Roman Catholic Church. The rôle of Dreyfus is played by a teacher in one of the state schools, who, because he is a Jew, is chosen as the scapegoat to bear the burden of a crime committed by one of the Jesuit teachers—an unnatural crime culminating in the murder of one of the pupils. Aside from these modifications in structure, the book reads like the columns of the daily press during the famous trial at Rennes; in one respect, it serves a useful purpose. It makes clear to the Anglo-Saxon much that was at that time incomprehensible—the feverish excitement, the blind, unreasoning prejudice, the

phenomenal obstinacy, the internal dissension that severed life-long friends and even families in their bitter partisanship over the famous "Affaire." As a document of contemporary social conditions, *Vérité* will be likely to live—as a novel, it will seldom be taken from the shelves.

Sociology in a novel by Zola is only in the natural course of things. But a sociological novel from Bourget is an unlooked-for novelty. After identifying himself for years with dramas of passion, the unseen, inner dramas of the heart, he has deliberately turned to a wider field, and in *L'Etape* has undertaken to study a crisis in family history—the crisis which comes only too frequently in these days of rapid progress, when the social strata are no longer so clearly marked in France as in the past, and when parents see their children outgrow them and pass beyond them into circles where they themselves cannot follow. M. Bourget sees peril in these new conditions; he thinks the tendency of the young men and women of to-day who flock to Paris from the provinces is to rise too fast, faster than they are able to readjust themselves to their new conditions, and that the consequences only too often are tragic. And something of all this he has attempted to interpret in *L'Etape*. Edouard Rod is another of the writers who after studying the problems of women's hearts for many years, turns aside to study the struggle of men who find the burden of life too heavy for them. *L'Eau Courante* is the pregnant history of a family of peasants honest, hard-working, worthy folk, who little by little find themselves dragged nearer and nearer to the brink of ruin. Day by day, hour by hour, he traces the growing misery of this family, crushed under the weight of a mortgage, which at the outset seemed a trivial burden. And around them, the neighbors, envious and watchful, await their chance like birds of prey, to reap the fruit of the disaster which they see approaching. Maurice Barrès, in *Les Déracinés*, the first volume of his "Energie Nationale," published some years ago, began to study the evils which come from too great ambition on the part of the younger generation, and more especially those who leave their homes to plunge in the maelstrom of Parisian life. *Leurs Figures*, the latest volume of the series, has in a measure lost sight of the original purpose, and is political rather than social. It is a picture of parliamentary life in the stormy days of the Panama scandal, and some of the central figures of that drama are hit off with a grim irony and a masterly touch that quite justify the praise the book received.

Other volumes of the past year, which without showing the strength of those already mentioned, ranked high in popular favor, include: *Le Jardin du Roi*, by Paul and Victor Margueritte, a delicate and charming love story, presented in the picturesque setting of Versailles; *L'Enfant d'Austerlitz*, by Paul Adam, which in a certain sense is a sequel to *La Force*, and traces the mental and moral development of a young French lad, whose father was an officer of Napoleon, and fell in battle; *L'Epave*, by Edouard Estaunié, which, like the last mentioned volume, is the history of a conscience, depicting the moral crisis in the life of a young girl, whose father has trained her in agnosticism, and who after his death, feels herself strongly tempted to take refuge in some spiritual faith; *Les Embrasés*, by Michel Corday, a curious volume, the scene of which is laid in a sanitarium, where the inmates have no other resource to while away the tedious hours, than their day-dreams of love which "like an ardent flame, consumes the hearts of men." Two new volumes come from the fertile pen of André Theuriet—*La Soeur de Lait*, a simple story of village life; and a collection of short tales, *Contes de la Marjolaine*. Other novels which deserve at least passing mention are: *La Maison du Péché*, by Marcelle Tinayre; *Le Voeu de Beatrice*, by Mme. Octave Feuillet; *Une Demi-Carrière*, by the Comte de Comminges; *La Marche de L'Amour*, by Georges Ohnet; and *Le Bon Plaisir*, by Henri de Regnier, a novel of the time of Louis XIV., in which the atmosphere and even the literary style of the time are delightfully reproduced.

FRENCH SOUDAN, a region of Africa comprising territories under French protection or influence, lies south of the Sahara and extends from Senegal eastward to the Egyptian Soudan. The area is estimated at about 300,000 square miles and the population at between 3,000,000 and 4,000,000. There is a considerable caravan trade across the desert to Tripoli and Morocco. The imports include textiles and hardware and conspicuously perfumes; these last, which come principally from Germany and Bulgaria, amount annually, according to the *Nachrichten für Handel und Industrie*, to over $770,000. While this part of Africa is recognized by the civilized powers as being within the French sphere, it is not so regarded by the inhabitants, who stand for Mohammedanism and tribal independence. For a number of years up to 1902 a teacher and leader of the Senussi, probably the most powerful Moslem tribe of the Soudan region, calling himself the Mahdi and known variously as Mohammed-es-Senussi, the Mahdi-es-Senussi, and the Sheikh Senussi, carried on by himself and through emissaries a vigorous religious and political propaganda in the Sahara oases and the Soudan. There is little doubt that Mohammedanism is steadily encroaching southward upon pagan Africa. Of this movement the work

of the Sheikh Senussi was an important factor and became a real menace to the French advance. But in the spring of 1902, while striving to extend their effective influence eastward toward Wadai, the French encountered the Senussi tribesmen and defeated them, though with difficulty, at Bir Alali, about 90 miles northeast of Lake Tchad. The French have easily overcome the black races, but it was thought that any further conquest of the Senussi, who show the same general fighting qualities and fanaticism encountered by General Kitchener in the Egyptian Soudan, would necessitate a large increase of the French military forces in the Soudanese region. After the battle at Bir Alali, however, the prestige of the Sheikh Senussi appeared to decline, and in August, 1902, advices from Fezzan, received at Jerba (Tunis) announced that his death had occurred in Kanem. Though regarded by his followers as a man of miraculous power and probably as a sort of combined emperor and pope of the desert, he was, according to some reports, "merely a harmless missionary to the Soudanese infidels." It seems more likely, however, that though his military resources may have been overestimated, his influence, partly political and partly religious, was strong and far-reaching. The victory at Bir Alali, though perhaps a short step, nevertheless marked some progress in the French advance. What Gordon began and Kitchener finished in the Egyptian Soudan, the French seem determined to carry out in the Sahara and the central and western Soudan.

FRENCH WEST AFRICA, comprising all the possessions of France in Africa south of Algeria except French Congo, grouped together for administrative purposes. The territory includes the colonies of Dahomey, French Guinea, Ivory Coast, and Senegal and the hinterlands of Upper Senegal and Middle Niger, with an aggregate estimated area of about 500,000 square miles, and a population of between 9,000,000 and 10,000,000. The separate colonies were originally grouped together in 1899, but by a decree of October 4, 1902, the administration was entirely reorganized. The new plan provides for a governor-general for all the French West African territories whose headquarters are at Dakar in Senegal and not at St. Louis as formerly. He is the actual chief of the colonial service, like the governor-generals of Indo-China and Algeria. Under him there is a special lieutenant-governor for Senegal resident at St. Louis, and he will be assisted by a secretary-general for all the colonies, and by a council. There will be no general budget. All appointments to the service are made either by the governor-general or by the French minister of colonies on his recommendation, and all branches of the service are under his direction. Each colony, however, retains its administrative and financial autonomy, has its own governor and prepares and regulates its own budget. The former protectorate of Senegal, under the new arrangement has been united with the territories of the Upper Senegal and Middle Niger to form a new administrative and financial district to be known as the "Territory of Senegambia and the Niger." This interior region will be under the direct control of the governor-general of French West Africa and his council, and will have a special budget made up from the receipts from these territories themselves, and contributions from the other associated colonies.

The new governor-general, M. Raume, who had proved his efficiency and administrative ability as a successful governor of Senegal, is a progressive and far-seeing man, and if he is allowed a free hand in his plan for the development of French West Africa there is every reason to believe that it will become one of the best paying and most productive colonial investments of the French republic. His programme includes the construction of an extensive system of railways, some of which are already being built, running inland from the coast of each of the four colonies and meeting in the common hinterland; the improvement of the ports; the dredging of the rivers, and regulation of their flow in order that they may be used for irrigation purposes.

FRIENDLY ISLANDS, three groups of islands in the southern Pacific, known as Tonga, Hapaai, and Vavau, constitute a British protectorate, as the outcome of the Anglo-German agreement of November 14, 1899. The aggregate area is stated at 374 square miles and the population upwards of 20,000. Government is administered by a native king (Jioaji II., since 1893), who is assisted by a legislative assembly; while British interests are represented by a deputy commissioner under the high commissioner and consul-general of the Western Pacific. In 1901 revenue and expenditure amounted to £20,900 and £20,893 respectively. The principal articles of export include copra, candle nuts, fungus, and fruit. The imports and exports respectively have been valued as follows: 1899, $360,724 and $345,089; 1900, $432,720 and $519,708; 1901, $312,716 and $428,291. In April, 1902, it was reported that dissatisfaction with the native courts had led the Europeans in the Friendly Islands to petition the imperial authorities to place all foreigners under the jurisdiction of the British officials.

FRIENDS, SOCIETY OF, commonly known as Quakers, a Christian sect which originated in England in the seventeenth century and which, it is believed, held a yearly meeting in this country as early as 1661. The Friends, with a total membership throughout the world of some 140,000, are most numerous in the United States, where they have about 120,000 members, comprised in the four divisions: Orthodox—1190 ministers, 830 churches, and 91,614 members; "Hicksite"—115 ministers, 201 churches, and 21,992 members; "Wilburite"—38 ministers, 53 churches, and 4468 members; Primitive—11 ministers, 9 churches, and 232 members. The Quakers have been always noted for their educational interests. They maintain several higher institutions, among the more prominent being Haverford College (Orthodox) and Swarthmore College ("Hicksite"), besides a number of efficient secondary schools, many of which are controlled in common by both branches. The Orthodox body has conducted since 1871 progressive foreign missionary work, and both divisions have been actively identified with efforts for the improvement of the Indians and negroes, and with various reform movements. The foreign missions of the Society of Friends now include 22 stations and 43 out-stations, employing 64 missionaries and 135 native laborers, and having 22 churches with 1810 communicants. The total income for 1901-02 was $49,697. A general conference, attended by some 3000 delegates, was held in Asbury Park, N. J., in the early part of September, 1902; but the most important event of the year was the organization among the Orthodox Friends of the five-year meeting in Indianapolis (October). This convention was the result of an effort to effect closer association of the yearly meetings, eleven in number, by means of a general body with definite powers. The action of the meeting that has attracted most attention was the general call, issued at the closing session, to all Christian churches to participate in a conference on the liquor traffic, to be held in Washington, D. C., beginning on the second Wednesday of March, 1906.

FRIES, Wulf (Christian Julius), a German-American violoncellist, died in Boston, Mass., April 29, 1902. He was born in Garbeck, Holstein, Germany, January 10, 1825, and in his youth taught himself the violoncello. In 1847 he came to the United States, and two years later assisted in the organization of the Mendelssohn Quintet Club, in which he was the 'cellist for 23 years. He was a prominent figure in Boston musical circles, played often with the Harvard Musical Society, and the Handel and Haydn Society, was an active member of the Beethoven Quintet Club, and in 1873 made up the trio with Wieniaski and Rubenstein during the latter's visit to Boston. He was well known as an artistic performer and successful teacher.

FRIGOTHERAPY. Raoul Pictet, of Switzerland, who discovered the process for the liquefaction of oxygen, has lately invented a method of treatment that he calls by the foregoing name. The patient is placed in a metal well lined with thick furs. This is surrounded by an outer shell containing a combination of sulphurous and carbonic acids in a liquid state, kept at a temperature of 110° F. below zero. The patient is said not to feel cold, but to experience on the contrary, a rise of from ½° to 1° in temperature in five minutes. The duration of the treatment ranges from 5 to 15 minutes at a time. The applicability of the treatment to definite diseases has not been worked out, but chronic nervous diseases are most likely to be benefited.

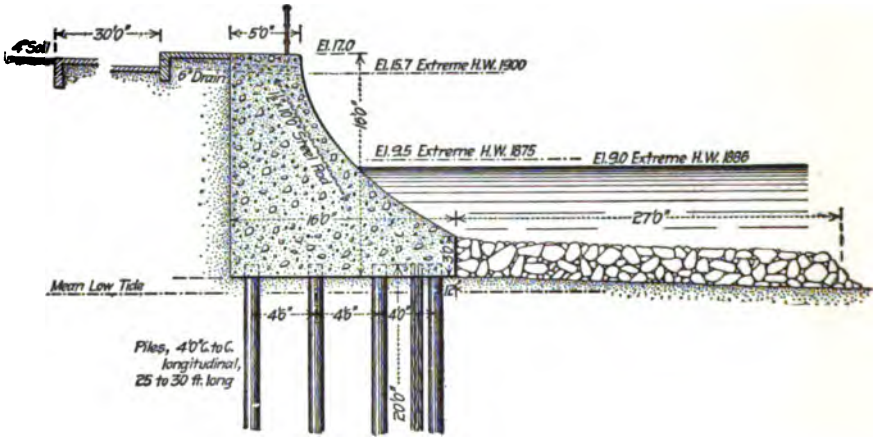
FRITZ, John, American iron and steel manufacturer, was born at Londonderry, Pa., in 1822. In his honor the John Fritz medal for discovery or achievement in science and industry was founded in 1902 by the joint action of the American Society of Civil Engineers, the American Society of Mechanical Engineers, the American Institute of Mining Engineers, and the American Institute of Electrical Engineers. Though first employed as a blacksmith and then as a machinist, he was early engaged in the iron and steel industry, and by long experience and thorough study has become one of the greatest living authorities upon their manufacture. He has for many years been a dominant factor in the development of the iron trade in the United States, was among the first to recognize the importance of Sir Henry Bessemer's discoveries, and has made experiments of lasting value with many other processes. He designed and built the immense forge and armor plate plant at Bethlehem, Pa., which he managed for many years, and was the promoter of other similar establishments. Several engineering societies in the United States have at different times elected him president, and he was one of the American "Captains of Industry" invited to meet Prince Henry of Prussia during the latter's visit to the United States early in 1902.

FULLER'S EARTH. See Mineral Production.

GALLAUDET, Thomas, an American clergyman, prominent in the education of deaf mutes, died in New York City August 27, 1902. He was born in Hartford, Conn., June 3, 1822, graduated at Trinity College (Hartford) in 1842, was ordained

priest in the Protestant Episcopal Church in 1851, and from 1851 to 1852 was pastor of St. Paul's Church, Morrisania, N. Y. In 1843-58 he was an instructor in the New York Institution for Deaf Mutes, and in 1852 founded at New York St. Ann's, the first church for deaf mutes in the world. In 1892 he became pastor emeritus, and from 1895, when the church was merged with St. Matthew's, was rector emeritus of St. Matthew's and vicar of St. Ann's Chapel, established for the mutes of the parish. In 1872 he founded and became manager of the Church Mission to Deaf Mutes, and in 1885 the Gallaudet Home for Deaf Mutes at Wappinger's Falls, N. Y. Schools were also organized by him at Rome, Rochester, and Malone, N. Y., and at Beverley, Mass. He traveled widely, preaching to deaf mute congregations. Trinity College conferred upon him the degree of D. D. in 1862.

GALVESTON SEA WALL. Work was begun during 1902 on a sea wall to protect the city of Galveston, Tex., from the flood waters of the Gulf of Mexico during exceptionally severe storms. The city of Galveston is located on the eastern end of Galveston Island. The original elevation of the island was in many places but little above ordinary high tides of the Gulf and at extraordinary high tides the water came into the streets in many places. This condition was ameliorated somewhat by filling up the low places with material at first hauled in from the sand hills which had formed along the gulf beach. Afterward this filling material was brought from the island at a point several miles west of the city, and from the mainland by rail, and later it was obtained by dredging from the bay. Even with this filling the ground level was at the highest parts of the city only 8.9 feet above mean sea



TRANSVERSE SECTION OF SEA WALL BUILT IN 1902 TO PROTECT GALVESTON, TEX., FROM GULF STORMS.

level and at the lowest points it was scarcely 4 feet above the same datum. The higher portions of the city are generally above overflows during storms, and it is only during phenomenal storms that the city is completely or to a great extent submerged. Such storms have occurred at intervals of every few years since 1834, when the first record was made, but the most severe one on record was that of 1900 when the water reached a height of 15.7 feet and the wind and waves destroyed a considerable portion of the city. The great destruction of life and property by this storm led the people of Galveston to take precautions against similar disasters in the future and in the fall of 1901 a board of engineers was appointed to study the situation and to devise a method of shore protection which would render the city safe from the gulf waters. This board submitted its report in April, 1902. The plan proposed was to build a concrete sea wall to protect the east and south sides of the city and a levee to protect the west side, and to raise the level of the city by filling in behind these barriers. The sea wall was to be 3½ miles long with its top 17 feet above mean low water. This wall was to be founded on piles and protected from undermining by sheet piling and riprap. The sea face of the wall was to be curved so that its upper portion would be vertical and its rear face was to be filled behind by an embankment the top of which was to be paved with brick for a width of 35 feet and planted with Bermuda grass for a further distance of 60 feet. The levee was to be 300 feet wide, with side slopes of one foot in 25 feet, and was to be built upon. In brief, by the proposed plan the city will be surrounded on three sides by a structure whose top is higher than the high water of 1900. The fourth or unprotected side is that facing Galveston Bay and here the city is higher than the highest water ever recorded previous to 1900. The total cost of the work

recommended by the board was $3,505,040, of which sum $1,294,755 was for the sea wall. Shortly after the board had made its report work was begun on the sea wall and at the end of 1902 it was being actively prosecuted with a large plant of special machinery.

GAMBIA, the oldest British colony in Africa, lying on the west coast, extends along both banks of the Gambia River. The area of the colony proper is 69 square miles, with a population on April 1, 1901, stated at 13,456; the Gambia protectorate has an area of about 3550 square miles, with a population on the same date of 76,948. The governor in 1902 was Sir George C. Denton (since 1900). Revenue and expenditure amounted to £49,161 and £29,818 respectively in 1900 and £43,726 and £48,518 respectively in 1901. Of the revenue in the latter year more than 75 per cent. was derived from customs; the unusually large expenditure in that year was due to military operations. The colony has no debt and at the end of 1901 there was a surplus of £58,115. Imports and exports were valued at £277,659 and £281,976 respectively in 1900 and £252,647 and £233,667 respectively in 1901. In the latter year ground nuts comprised over 70 per cent. of the exports. There is a notable growth of Mohammedanism in this part of Africa; in Gambia the Mohammedans form nearly three-fourths of the population. The governor of the colony thinks this growth "will be an advantage, although the revenue from the spirit trade will decline."

GARBAGE DISPOSAL. Outside of the larger cities of the United States the most common means of garbage disposal continues to be dumping on land or in water at the most convenient point where such dumps will be tolerated. In some sections, particularly in New England, feeding to hogs is a common means of disposal, but this is objectionable unless the material is quite fresh. Where improved means of disposal have been adopted, the choice has been between cremation and reduction. The object of the latter practice is to recover grease from the garbage and to render the tankage available for fertilizing material. Since an elaborate and expensive plant is required for reduction purposes such works are almost invariably restricted to the larger cities. Of the 1524 places of over 3000 inhabitants included in the *Municipal Year Book* (New York, 1902), 22 reported crematories and 75 reduction works, making 97 in all. At Chicago and at Des Moines, however, the garbage furnaces consume so small a portion of all the garbage collected as to be of little account, and in a number of other cities the amounts the furnaces take are far below the needs of the population. Of the 22 reduction works, 15 are in places of 100,000 population or more. The 97 places already mentioned, with their populations by the United States Census of 1900, and with the system of garbage disposal in use, are shown in the table on the following page.

The garbage furnaces at Milwaukee were put in operation early in 1902. They have a contract capacity of 150 tons a day, and are located on Jones's Island, just inside the mouth of the harbor, to which point the garbage is brought by boats. Contracts for garbage disposal at Baltimore and at Newark have been awarded with the understanding that reduction works will be built. In Great Britain garbage furnaces, or refuse destructors, are relatively more common than in the United States, and many recent installations are operated in connection with electric light and power plants, the heat from the destructors being used to raise steam in boilers and thus to furnish a portion of the energy needed to drive the dynamos. As a rule, the British furnaces are far better designed and operated than those in this country, and the refuse consumed there, it is believed, contains more combustible matter than is the case in America. Here it is very rare for a city to be able to burn its garbage without the use of large quantities of extra fuel, and save for the small furnace at Chicago it is doubtful if any attempt to utilize heat is made. A portion of the dry, combustible refuse at Boston is collected separately, the salable paper and other material sorted out, and the balance discharged over an endless belt into a furnace, the heat from which develops steam for use in the plant itself. At New York a single furnace for burning the same class of refuse was built in 1902. Descriptions of the new Milwaukee garbage furnaces, and of the New York refuse burning plant, were given in *Engineering News* for January 23, and for April 17, 1902, respectively.

GARDNER, Samuel Rawson, an English historian, died February 23, 1902, at Sevenoaks, Kent. He was born March 4, 1829, at Ropley, Hampshire, and was educated at Winchester College, and Christ Church, Oxford. After receiving the degrees of J.U.D. and Ph.D. at Edinburgh and Göttingen, he entered upon a life of indefatigable historical research. In 1863 appeared the first two volumes of his history of the Stuart kings. He found that on the scale projected he could not carry the work beyond the death of Cromwell, and even with this limit set, just failed of completing the last installment, which comes only down to 1656. Owing to the inadequacy of his private means he felt himself constrained to accept the chair of history at King's College, London, in 1871, and thus his production was restricted

during the middle years of his life. His most valuable educational work was done as a lecturer, a capacity in which his attainments were displayed to the greatest advantage. In 1882 he received a civil list pension of £150, and in 1884 was elected to a research fellowship by All Souls' College, Oxford, upon the lapse of which a similar endowment for life was conferred upon him by Merton College. His work is notable for the extraordinary care lavished on the smallest details. He is said to have been the only man who has read the entire collection of Thomasson Tracts in the British Museum. Besides learning most of the European languages for the sake

GARBAGE CREMATION AND REDUCTION PLANTS IN PLACES OF 3000 POPULATION AND OVER BY THE UNITED STATES CENSUS OF 1900.

(From *The Municipal Year Book*, 1902.)

City.	Pop.	Plant.	City.	Pop.	Plant.
Boston, Mass.	560,892	Reduction	Cleveland, O.	381,768	Reduction
Lowell, Mass.	94,969	Cremation	Columbus, O.	125,560	"
New Bedford, Mass.	62,442	Reduction	Dayton, O.	85,333	Cremation
Bridgeport, Conn.	70,996	Cremation	East Liverpool, O.	16,485	"
Waterbury, Conn.	45,859	"	Findlay, O.	17,613	"
Buffalo, N. Y.	352,387	Reduction	Glenville, O.	5,588	"
New York, N. Y.	3,437,202	" *	Hamilton, O.	23,914	"
Syracuse, N. Y.	108,374	"	Mansfield, O.	17,640	"
Troy, N. Y.	60,651	Cremation	Youngstown, O.	44,885	" †
Utica, N. Y.	56,383	Reduction	Anderson, Ind.	20,178	"
Yonkers, N. Y.	47,931	Cremation	Elwood, Ind.	12,950	"
Atlantic City, N. J.	27,838	"	Evansville, Ind.	59,007	"
Camden, N. J.	75,935	"	Fort Wayne, Ind.	45,115	"
Paterson, N. J.	105,171	Reduction	Indianapolis, Ind.	169,164	Reduction
Trenton, N. J.	73,307	Cremation	Lafayette, Ind.	18,116	Cremation
Allegheny, Pa.	129,896	Reduction	Marion, Ind.	17,337	"
Allentown, Pa.	35,416	Cremation	Muncie, Ind.	20,942	"
Bradford, Pa.	15,029	"	Richmond, Ind.	18,226	"
Butler, Pa.	10,853	"	South Bend, Ind.	35,999	"
Coudersport, Pa.	3,217	"	Terre Haute, Ind.	36,673	"
Haselton, Pa.	14,230	"	Vincennes, Ind.	10,249	Reduction ‡
Jeannette, Pa.	5,865	"	Detroit, Mich.	285,704	"
Lancaster, Pa.	41,459	"	Grand Rapids, Mich.	87,565	Cremation
McKeesport, Pa.	34,227	"	Belleville, Ill.	17,484	Reduction(?)
Oil City, Pa.	13,264	"	Chicago, Ill.	1,698,575	Cremation §
Philadelphia, Pa.	1,293,697	Reduction	Evanston, Ill.	19,259	"
Pittsburg, Pa.	321,616	"	Joliet, Ill.	29,353	"
Reading, Pa.	78,961	"	Lincoln, Ill.	8,962	"
Scranton, Pa.	102,026	Cremation	Mt. Vernon, Ill.	5,216	Reduction
Wilmington, Del.	76,508	"	Milwaukee, Wis.	285,315	Cremation
District of Columbia	278,718	Reduction	Des Moines, Ia.	62,139	"
Newport News, Va.	19,635	Cremation	Oskaloosa, Ia.	9,212	"
Norfolk, Va.	46,624	"	Minneapolis, Minn.	202,718	"
Richmond, Va.	85,050	"	Topeka, Kan.	33,608	"
Benwood, W. Va.	4,511	"	Butte, Mont.	30,470	"
Fairmont, W. Va.	5,655	"	Helena, Mont.	10,770	"
Wheeling, W. Va.	38,878	"	St. Louis, Mo.	575,238	Reduction
Charlotte, N. C.	18,091	"	Corsicana, Tex.	9,313	Cremation
Greensboro, N. C.	10,035	"	Dallas, Tex.	42,638	"
Atlanta, Ga.	89,872	"	Gainesville, Tex.	7,874	"
Brunswick, Ga.	9,081	"	Houston, Tex.	44,633	"
Macon, Ga.	23,272	"	Taylor, Tex.	4,211	"
Savannah, Ga.	54,244	"	Waco, Tex.	20,686	"
Jacksonville, Fla.	28,429	"	Portland, Ore.	90,426	"
Memphis, Tenn.	102,320	"	San Francisco, Cal.	342,782	"
Covington, Ky.	42,938	"	Santa Rosa, Cal.	6,673	"
Louisville, Ky.	204,731	"	Ogden, Utah	16,313	"
Akron, O.	42,728	Reduction	Salt Lake City, Utah	53,531	"
Cincinnati, O.	325,902	"			

* Also several minor cremation plants in outlying districts. † Garbage not collected at present.
‡ Plant reported burned in 1901. § Small portion.

of consulting original historical sources, he visited the scene of almost every battle that he described. He possessed the gift of judicial insight in a marked degree, and combined it with great political impartiality. His style is lucid, and although somewhat subdued in his earlier work, is more enlivened in the later volumes. In 1883 he republished his history, which had appeared as five separate works, under the collective title, *A History of England from the Accession of James I. to the Outbreak of the Civil War, 1603-42*. In 1886, 1889, and 1891, appeared the three volumes of the *History of the Great Civil War, 1642-49*, and in 1894, 1897, and 1901 were issued the three volumes of the *History of the Commonwealth and Protectorate*.

GAS, ILLUMINATING and FUEL. Three features of the gas industry, notable for several years past, are more prominent than ever: (1) The increasing use of Welsbach or other incandescent burners, thus tending to make calorific values of far more importance than candle power; (2) the quiet but steady progress of carbureted water gas; (3) the multiplication of coke-ovens, at which illuminating

and fuel gas is produced as a by-product. As to carbureted water gas, one American company alone is said to have secured contracts in 1902 aggregating a daily capacity of about 33,000,000 cubic feet. In Europe, also, this gas is making good headway. The distribution of gas under pressure, begun only a few years ago, is being extended, particularly where it is desirable to supply a number of relatively small and scattered communities from a single gas generating plant. The relative advantages of cast iron and wrought iron mains for distributing gas were discussed by Mr. Godfrey L. Cabot, of Boston, in the *American Gas Light Journal* for May 12, 1902. The author stated that after studying the subject by personal investigation in several countries in Europe, and also in New York, Philadelphia, and Pittsburg, he was convinced that the gas leakage from cast-iron mains "is incomparably greater than in our wrought-iron mains, which have a total length of 60 to 70 miles, and handle from 9,000,000 to 10,000,000 cubic feet of gas per day."

Three important lectures on *The Future of Coal Gas and Allied Illuminants* were delivered by Prof. Vivian B. Lewes, in the latter part of 1902, before the British Society of Arts. In these lectures the history of coal and water gas is sketched, the processes involved and their various improvements are described, and still further possible improvements are pointed out. Incandescent gas lighting, including the Welsbach and other devices, is considered at length. The author notes the rapidly increasing use of large gas engines to drive dynamos in England and in continental Europe, a practice also found in America. In view of the use of gas engines for this and other purposes, and of the possibilities of low candle power gas where incandescent mantles are used, Professor Lewes believes that "the gas of the future" will be as low as 12 and finally 10 candle power, and will be "made by mixing blue water gas with coal gas" without "any need for enrichment." He goes on to say that, after allowing time for adjustments, the 12 candle power gas will have a calorific value of not less than 460 British thermal units net, and a selling price of not more than 2s. (49 cents) a thousand, the economies necessary to reach this lower price being brought about by making the gas in the holder at 9d. to 9½d. (18 to 19 cents) a thousand, and distributing at a considerably increased pressure, the pressure being regulated down to 1½ inches at the entrance to the consumer's meter. Gas fittings should be entirely taken over by the gas companies, who should supply incandescent fittings and mantles, and keep them in order at a small yearly rental; and where swinging brackets and other causes demand flat flame burners, the companies should fit nipples with broad slits regulated to burn at the lowest possible pressure.

Dr. S. H. Durgin, of Boston, in his report to the American Public Health Association, shows that the common condition of gas pipes and fixtures in Boston is very poor, small leaks very numerous, and that a moderate increase of pressure in the fixtures above the ordinary produced leakage in 89 per cent. of all houses examined. It was also shown that the number of fatalities from illuminating gas is large and is increasing from year to year. In order to ascertain to what extent the medical profession in Boston had recognized cases of acute and chronic gas poisoning, inquiries were sent to 2200 physicians. Replies were received from 460 physicians; 246 reported no experience, the other 214 reported 1025 cases of acute poisoning; 374 of these were fatal, 288 were found dead, and 86 lived from one hour to twelve months, 623 made complete recoveries in periods varying from a few hours to three years, 28 made partial recoveries in from three weeks to twenty-one months.

GAS, NATURAL. See NATURAL GAS.

GASTROPTOSIS is the displacement downward of the stomach, variously attributed to lax and weak abdominal walls, anomalies of intra-abdominal pressure, inflammatory adhesions that contract and draw the organ downward, and relaxation of the peritoneal supports. The condition is usually accompanied by downward displacement of other viscera, as the liver, kidneys, and intestines, and usually results in chronic ill-health, with gastro-intestinal disturbances, pain, and all the diverse symptoms of neurasthenia or hysteria. The treatment of this condition has been unsatisfactory and several operations have been devised for its relief. The latest procedure of this kind, devised by Dr. Coffee, of Portland, Ore., is described by him in the *Philadelphia Medical Journal*, of October 11, 1902. This consists essentially in suspending the stomach in a hammock made of the great omentum (the fatty apron hanging in front of the intestines). In this operation the abdomen is opened, the stomach exposed, and replaced in its normal position, any adhesions found being divided; then the omentum is stitched to the anterior abdominal wall, forming a permanent pocket, beyond which the stomach can not descend. In the two cases that are reported the operation afforded complete relief.

GEMS. The mining of sapphires and turquoises, the most valuable of the precious stones found in the United States, made satisfactory progress during 1901. New discoveries of turquoises were reported at Lajara, Col., in Nye County, Nev.,

and Mohave County, Ariz. Six companies were engaged in exploiting the turquoise deposits of New Mexico, which now supply the bulk of the world's output. The newly discovered sapphire mines on Yogo Creek, Fergus County, Mont., were operated by two companies; specimens weighing four carats and a few even larger were found. Among other new developments in 1901 were the finding of beautiful epidote crystals on Prince of Wales Island, Alaska; the discovery of a new mine of colored tourmalines at Mesa Grande, San Diego County, Cal., and the discovery of delicately colored vesuvianite on Indian Creek, Siskiyou County, Cal. A diamond of good quality and weighing 3½ carats was found near Columbus, Ga., thus adding a new locality to the already large list of occurrences in the United States. The value of the precious stones mined in the United States in 1901 was $289,500; the importations to the United States in 1902 amounted to $18,546,313.

GEOGRAPHIC SOCIETY, NATIONAL, an organization founded in 1888 for the publication of the results of geographical exploration and research. Every State in the Union is represented in the society's membership, which numbers 2600; of these, 900 are resident in Washington. The society publishes an illustrated monthly, the *National Geographic Magazine,* which is sent to members free of charge. The principal work of the society in 1902 was the sending of a special commission to Martinique and St. Vincent to study the volcanic disturbances on the islands. The members of this commission were Dr. Robert T. Hill, the well-known geologist; Prof. Israel C. Russell, of the University of Michigan; and Mr. C. E. Borchgrevink. Reports of the commission were published in the *National Geographic Magazine* for July and December, 1902. President, Alexander Graham Bell; secretary, A. J. Henry, Corcoran Building, Washington, D. C.

GEOLOGY. In addition to the usual number of scientific investigations which were carried on, the results of which were published in various scientific journals, the year 1902 witnessed several important discussions and discoveries that deserve more than a mere bibliographic mention.

Petrography.—The foremost among the papers requiring detailed consideration is one by J. P. Iddings, L. V. Pirsson, H. S. Washington, and W. Cross, entitled *A Quantitative Chemico-Mineralogical Classification and Nomenclature of Igneous Rocks* (*Journal of Geology,* x., p. 555), in which an entirely new system of classification and nomenclature is proposed. Ever since the science of petrography was first outlined by Van Leonhard in 1823, numerous classifications have been proposed, but most of these have been found to be unsystematic and unsatisfactory, at least, in certain parts. With the introduction of the microscope in the study of rocks, a better conception of the mineralogical character and relations of rocks was obtainable, and consequently an improvement was visible in the classification, following this period. The system of classification of igneous rocks most commonly used by petrographers at present is that of Rosenbush, which is based on mineralogical character and texture. But even though this has come to be widely used, still it is open to the objection that the rocks are not always placed in the positions that indicate their true genetic relations. Much confusion has undoubtedly existed in petrography, due to the redefinition of old terms and the lack of uniformity in the application of existing systems. Furthermore, as the authors of the new system claim, and perhaps not without reason, the present systems are founded to a large extent on theory rather than on facts, while the nomenclature is inadequate to point out the relations of the different kinds of rocks. In the new classification the authors propose that the classification of all igneous rocks shall be based on their chemical composition, and therefore all rocks of like chemical composition will be grouped together. Both the definition of the chemical composition of the rock as well as of a unit of classification are expressed in terms of certain minerals which are capable of crystallizing from a magma of given chemical composition. This does not mean, however, that they always do so. In order to form their groups the authors first separate the rock-making minerals into two groups: (1) That containing the more silicious alkali—and calcic aluminous ones, such as quartz, feldspar, leucite, etc.; and (2) that containing the ferro-magnesian minerals, such as wollastonite, olivine, hematite, apatite, calcite, etc. The former group is termed the *salic,* the latter the *femic.* With this new system the chemical composition of a rock must be known in order to classify it, and this is either determined accurately by chemical analysis or approximately by a physical or microscopic optical examination. Since, however, a magma may crystallize on cooling into different mineral combinations, depending on conditions (such as temperature, pressure, etc.), the authors find it necessary to select a certain set of salic and femic minerals as a uniform standard of comparison. This standard mineral composition is termed the *norm.* It is not, however, the same always as the actual mineral composition, and the latter is therefore termed the *mode.* The rocks are divided into five classes, depending on the relative proportion of minerals present belonging to the two groups (salic and

femic) of standard minerals, and acording as one or the other of these two groups alone constitutes the norm or is in excess, abundant, or rare. These classes are further subdivided into orders which are again based on the relative amounts of salic and femic minerals. A further subdivision is made into *rangs* and *grads*. Each of these may be further subdivided, into sub-orders, sub-rangs, and sub-grads. The texture of the rock which was an important factor in the classification of Rosenbush and others is believed to be of minor importance, and is considered after the chemical composition. The new system calls for an entirely new nomenclature and that supplied is based on a definite system, although the names proposed sound rather strange at first. The nomenclature consists of three parts designating respectively the chemical composition and the standard mineral composition, the actual mineral composition, and the texture. The last two are adjectival terms, and suffixes are also used to designate the position of the name, whether a class, order, rang, or grad. There has not yet been time to see whether the classification will stand the test of extended criticism. It is somewhat doubtful whether, for instance, German petrographers will adopt it, and still, even if not universally accepted, the suggestions brought out by discussion may lead to something better and more satisfactory than the existing classifications. Some petrographers have objected to the placing of texture among the characters of minor importance, while others consider that the assumption of a standard mineral composition which may differ considerably from the actual mineral composition is apt to be misleading and not fully warranted. To meet the objections raised against its complexity the authors have proposed a simplified form of their scheme for field use and elementary work.

Areal Geology.—Geologists engaged in mapping the areal distribution of the different formations have often been puzzled to know just what to use as a geological unit, and whether the criteria employed in mapping should be of a paleontological or lithological character. In the latter part of 1901, Mr. Bayley Willis brought out some suggestive facts on the individuals of stratigraphic classification in which he considered that the lithologic characters should be first considered and that they should be supplemented by a consideration of the form and details of the formation plotted, and their distribution in stages; for, as he points out, the lithologic characters can not always be safely used as a basis. It is true that in some cases they are reliable, but in others the lithologic characters are so inconstant that the paleontologic evidence must be used. Still the fact that life has been continuous, that faunas and floras migrate, and that shorelines do the same, shows that time divisions of exact synchronous value can never be established upon either faunal changes or lithological characters of sediments alone. Some geologists have, however, long made it a custom to recognize fossils as the best available means for determining the systematic correlation of geological formations. In making such correlations the degree of likeness expressed by the number of species is taken usually as the measure of contemporaneity. For correlations on a finer basis and for tracing or estimating the limits of local formations by means of fossils, more accurate methods than mere identity are necessary. In 1902 Prof. H. S. Williams, a leading American paleontologist, pointed out the danger of a too extensive use of faunas for the purposes of exact correlation. It is known, for instance, that certain faunas may have a wide range, while others may seem to stop abruptly and new ones begin immediately above them. The early geologists would have pointed to this as evidence of sudden extinction, but it simply means a migration of these faunas to another region, just as the fauna that suddenly appears above them may have moved in from elsewhere, and the life period of a fauna is therefore not what it appears to be in any particular section. As sedimentation may continue over a wide area, the shifting fauna may be found at a higher horizon in one region than in another, and therefore if we should attempt to correlate the two series of strata containing this fauna by means of its presence we should be grouping together rocks of different age.

Many workers in the Appalachian region, in attempting to trace the individual formations from west to east and to correlate them by means of the contained fossils, have observed a great difference in the stratigraphic succession as soon as they entered the area lying just west of the Appalachian protaxis. It was assumed, however, that a stratigraphic continuity really existed, while the more fragmental character of the sediments along the western flank was believed to indicate little more than proximity to the eastern shoreline of the great interior sea that existed in the Mississippi Valley during the Paleozoic times; moreover, the interruption in the gradual change eastward in the character of the deposits was generally ascribed to overthrust faulting. The solution of this problem, which has engaged the attention of American geologists for more than half a century, seems to have been recently solved by Messrs. Ulrichs and Schuchert, after long and careful field work (Bulletin 52, New York State Museum). They believe that the present North American continent was in existence and practically full development of outline in

the Algonkian times (a view quite different from that hitherto held by most geologists), and that since that period the Canadian shield and other small Archæan land areas have never been wholly submerged. The present main lines of elevation were in existence in Algonkian times and have been maintained without serious modification to the present day. The anticlinal folds of the Appalachians that began in the Paleozoic era and later were in common with those of older date, never changed except possibly to undergo a periodical accentuation and a shifting of their axes landward. Ulrichs and Schuchert believe that the greater part of the interior of the continent was land in early times, and that the real birth of the great interior or Mississippian sea began with the middle Cambrian. From that time up to the end of the Carboniferous there has been a succession of elevations and depressions, between which there seems to have existed a rhythmic relation. The theory is advanced that these oscillations of the interior of the continent should serve as the basis of a revised classification of the rocks of North America. This is rather a return to the ideas expressed years ago by Eaton and Newberry. In accordance with this theory each system should begin with a subsidence and end with an emergence, and we should have a classification quite different from that now in use. The Mississippi sea was probably quite shallow, and even showed tidal flats in many portions of it. From the middle Cambrian up to the end of the Carboniferous there were a series of elevations and depressions along the Appalachians, which separated the Atlantic Ocean and the Mississippian sea from time to time. An important movement occurred at the close of the Beekmantown epoch, when the Mississippian sea was restricted more and a fold was developed on the western side from the Appalachian Valley extending from Alabama to Newfoundland. The two seas were separated by several barriers until late in Oriskany time, and another period of separation occurred in the Marcellus as well as in the Portage. Invasions of the Mississippian sea occurred to the northeastward and at another time of the Atlantic sea into the Mississippian basin by way of certain channels in central New York. These invasions and temporary connections are shown by a mingling and migration of the different faunas.

Glacial Geology.—As work in glacial geology has progressed in the central and western States, the evidence pointing to several advances of the continental ice-sheet, separated by inter-glacial intervals, has become continually stronger, and the various till sheets have been carefully mapped and studied as far east as Illinois. In the eastern States evidence of an equally positive character has been lacking, although recently accomplished work points in that direction. During 1902 there appeared the results of Leverett's work in Ohio (Monograph 41, United States Geological Survey), a region whose glacial history has been discussed by many prominent geologists, including Newberry, Orton, Gilbert, Wright, Chamberlin, and Taylor. Leverett has found evidence of eleven epochs, or stages, of the glacial period as follows: (1) The oldest recognized glaciation, the sub-Aftonian of Chamberlin; (2) the Aftonian interval of recession of the ice-sheet; (3) the Kansan stage of glacial re-advance; (4) the second or Yarmouth interval of recession; (5) the Illinoian re-advance; (6) the third or Sangoman recession; (7) the Iowan re-advance, the deposition period of the loess; (8) the fourth or Peorian recession; (9) the early Wisconsin stage of re-advance with the formation of four successive systems of marginal moraines; (10) the fifth interval of glacial retreat; (11) the late Wisconsin of mainly continued retreat, with ten sub-stages of halt or slight re-advance, which was marked by a series of marginal moraines and changes of the glacial lakes that finally occupied the Erie and Ontario basins.

Much interest and not a little excitement was created by the discovery in April, 1902, of human bones in a loess-like deposit at a point two miles southeast of Lansing, Kan. The discovery was made by two farmers who were digging a cellar. The great value of this discovery lay in the possibility of its being the remains of prehistoric man, one who existed even before the close of the glacial period. The bones were found in the loess near its contact with an underlying limestone, and close to a small stream valley, tributary to the Missouri River at that locality. The level of the tunnel is twelve feet above the highest point reached by the river during the flood of 1881. Certain geologists, including N. H. Winchell, who first examined the remains, came to the conclusion that the loess was a glacial deposit and that the bones had been entombed at the beginning of the deposition of this material, which would refer it to the Iowan stage of the glacial period, when the ice had receded from this region but still covered the northern part of the country. They considered therefore that the Lansing skeleton was of late glacial stage, and probably twice or perhaps three times as ancient as the traces of man which have been found in the gravels at Trenton, N. J., and at Little Falls, Minn. These views, however, are not shared by all the glacial geologists who examined the locality and Professor Chamberlin who also studied the occurrence in some detail considers that the most conservative and probable view is that the loess-like deposit in which the bones were

found, does not belong to the extensive loess-sheet of the Iowan stage as claimed by some, but that it represents a mixture of flood-plain material, soil washed from higher slopes, blown sand, and delta-material, the beginning of this entire accumulation dating back to a time when the Missouri River bed was at the level of the limestone underlying the tunnel. Since then the river has cut down its channel twenty-five feet. The antiquity of the burial is measured, therefore, by the time taken by the Missouri River to lower its bottom, which is two miles or more in width, from 15 to 25 feet. This undoubtedly represents a considerable time, but falls far short of the close of the glacial invasion. As Chamberlin has pointed out, evidence of man's presence in the glacial period should be sought for in the interglacial deposits rather than in fluvial deposits of glacial rivers, since there is liability of these to undergo the great overworking by the scour and fill process so common in all rivers. See ARCHÆOLOGY, AMERICAN (paragraph Human Antiquity).

Economic Geology.—In 1902 various papers, already published by Van Hise, Kemp, Weed, Emmons, Lindgren, and others, appeared in bound form under the title of *Genesis of Ore Deposits.* The book makes a remarkable showing, and represents well the great advance that has been made in our knowledge of the genesis of ores during the past ten years in America, as well as being an excellent summary of present views. One notable feature is that for the first time the results of recent investigations of physical chemistry are being applied to problems in the genesis of ores. The secondary enrichment of ores by descending waters is brought out somewhat fully by Rickard and Weed, and the latter now finds that it may also be caused by ascending alkaline waters, similar to those of the Yellowstone Park. This might occur in the case of primary quartz pyrite veins that had been reopened by later fracturing, and the alkaline waters, ascending through these fissures and coming into contact with the primary pyrite, would deposit metallic sulphides because the pyrite acted as a reducing agent. This point has been recently verified by actual experiment. Weed has also classified and defined a type of ore deposits known as the contact metamorphic type, showing that it is characterized by a gangue consisting essentially of garnet, epidote, actinolite, and other lime-alumina silicates. Under this type it is found possible to group two classes, namely (1) copper deposits found at the actual contact with intruded rocks and known as the Kristiania type, and (2) deposits in sedimentary strata which have been altered by contact metamorphism, and in which the ore is confined to one bed. This is known as the Cananea type. These two classes of copper deposits are, however, to be distinguished from those of similar geological structure and occurrence in which free gold and tellurides of gold and bismuth and highly auriferous pyrite are the only ore minerals. These deposits are all connected genetically with igneous intrusions, either structurally in the formation of ore channels or by the deposition of ore by a pneumatolytic or solfataric action; but the new fact shown is that thermal metamorphism effects marked physical changes in the contact zone of sedimentary rocks, the result of this being that certain strata are made porous, while others are relatively impervious. Furthermore, the gases and vapors given off by the covering igneous magma, as well as the circulating waters of the later phase, penetrate these porous rocks and deposit metallic sulphides and tellurides.

GEORGE, King of Saxony, succeeded to the throne on the death of his brother Albert (*q.v.*), June 19, 1902. He is the second son of King John, who reigned from 1854 to 1873, and Queen Amalie, daughter of King Maximilian I. of Bavaria, and was born August 8, 1832. On May 11, 1859, he married the Infanta Maria Anna, daughter of King Ferdinand of Portugal. She died in 1884. He served under his brother Albert, then crown prince, who commanded the Saxon forces in the Austro-Prussian war of 1866, and participated in the decisive battle of Königgrätz on July 3 of that year. He served also in the Franco-Prussian war, in which he distinguished himself at Gravelotte and Sedan.

GEORGIA, a southeastern State of the United States, has an area of 59,475 square miles. The capital is Atlanta. Georgia was one of the original thirteen States. The population in 1900 was 2,216,331, while in June, 1902, as estimated by the government actuary, it was 2,298,000. The populations of the three largest cities in 1900 were: Atlanta, 89,872; Savannah, 54,244; and Augusta, 39,441.

Finance.—The balance in the treasury September 30, 1901, was $730,722.10. The receipts for the fiscal year 1901-02 were $3,886,163.21, and the disbursements $4,105,705.10, leaving a balance in the treasury September 30, 1902, of $511,180.21. Of the receipts, $2,123,612.13 were derived from the general tax; $147,493.78 from the liquor tax; $272,448.94 from the poll tax; $274,614.61 from the railroad tax; $420,012 as the annual rental from the Western and Atlantic Railroad; and $150,000 from the temporary loan of 1902. The bonded indebtedness of the State on September 30, 1901, was $7,731,508, and of this amount the regular annual installment of $100,000 was paid on January, 1902, leaving a net bonded indebtedness of $7,631,508.

Agriculture and Industries.—Agricultural interests in Georgia were not so prosperous in 1902 as usual. There were 3,899,331 acres planted in corn, which yielded 35,093,979 bushels, with a value of $25,618,605. The season for winter wheat was poor. The acreage was 284,531 acres according to the *Crop Reporter*, which was far below the figures (319,161 acres) for 1899 given by the Twelfth Census. The yield for 1902 was given as 1,707,186 bushels valued at $1,673,042. According to the above authorities, the acreage of oats declined between the same years from 318,433 to 264,013 acres. The production for 1902 was 2,930,544 bushels, valued at $1,553,188, considerably below the average crop. The statistics seem to show an even greater decline in the growth of hay. The census figures show 130,253 acres of hay in 1899, while the statistics of the Department of Agriculture for 1902 give 88,080. The yield was 119,789 tons; the value, $1,605,173. Potatoes and sweet potatoes were average crops. Tobacco was conspicuous as the one crop especially productive. The acreage was small (2050 acres), but the yield was 670 pounds per acre—the three preceding crops averaging only 475 pounds. Cotton yielded 165 pounds of lint cotton per acre—considerably below the average. Rice yielded 31 bushels per acre. The cotton manufacturing industry continued to prosper during 1902, five new cotton mills were erected and much new capital was invested in enlargements and improvements during the year.

The total railroad mileage in the State July 1, 1901, was 5816.80—an increase of 201.92 miles during the year. The gross earnings for the year were $23,246,225.42. The operating expenses were $16,383,652.23, or 70.48 per cent. of the gross earnings, leaving $6,862,573.19 as net earnings. The average net earnings per mile of road in the State were $1244.57.

Legislation.—Among the acts passed during the 1902 session of the legislature, one of the most important was that providing that if an employee of a corporation dies, wages due him not exceeding $100 may be paid to his widow or minor children without administration on his estate. The child-labor bill, advocated vigorously by philanthropists and reformers both North and South, failed to pass. This was a hard blow to the movement for factory legislation, as neighboring States will urge that it would be unfair to hamper mill owners within their own borders by such restrictive legislation, when Georgia offers a free field for the exploitation of infant labor. Such legislation would, it is alleged, merely drive mills to Georgia.

Political.—The contest for the governorship in 1902 was unusually interesting, because of the prominence of the two leading candidates. Mr. Joseph M. Terrell, the successful candidate, who resigned the position of State attorney-general to enter the contest, had held that office for ten years. The primaries, in Georgia, practically decide the contest, as all candidates are usually Democrats. Mr. J. H. Estill, of Savannah, who received the second highest vote, is the editor and proprietor of the Savannah *Morning News* and a veteran of the Civil War. The prohibition question was the most prominent issue in the November gubernatorial campaign. The liquor law of the State provides for local option, and 120 out of 139 counties are under prohibitory laws. After the convention of the regular Democrats, Mr. Dupont Guerry declared himself a Democratic candidate for governor, having for his platform the prohibition of the sale of liquor on the plan adopted in Maine. By this action he expected to influence the Democratic vote successfully against the 19 "wet" counties of the State or to drive the Prohibitionists of the 120 "dry" counties into direct opposition to the regular Democratic party. His expectations were not fulfilled.

Conventions and Platforms.—The Democratic State Convention was held at Atlanta on July 2, 1902. The platform favored equal rates of taxation for all kinds of property subject to taxation; the encouragement of enterprise in the State; the authorization of the Interstate Commerce Commission to revise railroad rates on inter-state shipments, and revision of the public school laws in order to secure a more satisfactory common-school system. Temperance work was touched upon in its connection with politics as follows: "We do not believe the cause of temperance should be made a political issue in this State. The best interests of the people, as well as the furtherance of that cause, demand a complete separation of this question from personal and party politics." The platform referred in terms of commendation to the attitude of the United States senators and representatives from Georgia regarding trusts, the colonial policy of the government, and the ship subsidy bill. It was urged that tariff protection be removed from all articles controlled by trusts or similar combinations.

The Gaynor-Greene Case.—For conspiracy to defraud the national government in collusion with Capt. Oberlin N. Carter during the progress of work for improving the harbor of Savannah, John F., Thomas H., and William T. Gaynor and Benjamin P. Greene were summoned to appear for trial at Savannah on February 11, 1902. On their arraignment, John F. Gaynor and Greene were bailed in $40,000 each, and an adjournment was granted until March 17. On March 6, the defendants were

called upon to answer to new indictments. It was then revealed that Greene and John F. Gaynor had taken flight to Quebec. Their bonds were ordered estreated. The two men were subsequently arrested in Quebec on May 20, and placed in confinement. Their extradition was fought for but not secured. See CANADA, DOMINION OF (paragraph Gaynor-Greene Extradition Case).

Elections.—At the regular biennial State election, held October 1, 1902, a full Democratic State ticket was elected. The vote for governor was Terrell (Dem.), 81,548; and Hines (Pop.), 5566, giving Terrell a plurality of 75,982. The legislature of Georgia met October 22, 1902, and re-elected Alexander Stephens Clay as United States senator for the full term of six years beginning March 4, 1903. The State legislature for 1903 will be composed of 40 Democrats, 2 Republicans, and 2 Populists in the senate, and 171 Democrats, 3 Republicans, and 1 Populist, in the house.

State Officers for 1902 and 1903.—Governor, Joseph M. Terrell, elected for two years, term ending November, 1904; secretary of state and ex-officio surveyor-general, Philip Cook; comptroller and ex-officio commissioner of insurance, W. A. Wright; adjutant-general, James W. Robertson; attorney-general, John C. Hart; State school commissioner, W. B. Merritt; commissioner of agriculture, O. B. Stevens; State treasurer, R. E. Park—all Democrats.

Supreme Court: Chief justice, T. J. Simmons; associate justices, Samuel Lumpkin, W. A. Little, W. H. Fish, A. J. Cobb, and Spencer R. Atkinson—all Democrats.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

GERMAN BAPTIST BRETHREN. See DUNKARDS.

GERMAN EAST AFRICA. See EAST AFRICA, GERMAN.

GERMAN EVANGELICAL SYNOD OF NORTH AMERICA, established in 1840, is a type of the State Church of Prussia, which represents a union of Lutheran and Reformed elements. The church, strongest in the central and north central States, is gaining steadily, its membership in 1902 being 209,156, an increase of more than 5800 for the last year, with 949 ministers and 1179 congregations. Seventeen districts are comprised in the synod. Its Sunday-schools have 111,788 scholars, and its parochial schools 24,541 pupils. The higher institutions of learning under the control of the denomination include a proseminary at Elmhurst, Ill., and a theological school, Eden Theological College, at St. Louis, Mo. Foreign missions are conducted in India, the field being organized into 4 stations and 45 out-stations, and employing 9 men missionaries and 5 women missionaries, besides several native workers. Some 2650 acres of land are held in connection with the foreign mission work. In the domestic field, there are 92 missions with 78 workers, a notable department of this activity being the Emigrant and Harbor Mission in Baltimore, Md. The German Evangelical Synod has headquarters in St. Louis, the location of the Eden Publishing House, and is represented officially by *Der Friedensbote,* a weekly, the circulation of which is more than 26,000. The report of the treasurer of the Synod for 1902 shows receipts and expenditures, respectively, of $62,843 and $61,949. A general conference of the Synod is held every three years, the last having been in 1901 in St. Louis. President, Rev. J. Pister; secretary, Rev. E. Fuhrman, 404 Lafayette Street, Newark, N. J.

GERMAN METHODIST CHURCH. See EVANGELICAL ASSOCIATION.

GERMAN REFORMED CHURCH. See REFORMED CHURCH IN THE UNITED STATES (GERMAN).

GERMAN SOUTHWEST AFRICA, a German protectorate on the South Atlantic between Angola and Cape Colony, has an estimated area of 322,450 square miles and an estimated population of 200,000. The protectorate is administered by an imperial commissioner stationed at Windhoek. There is a military force which includes natives and about 800 Europeans. For the fiscal year 1903 the estimated revenue (including an imperial contribution of 7,634,000 marks) and expenditure balanced at 9,458,900 marks. (The mark is worth 23.8 cents.) A large part of the country is barren and there is little agriculture; the chief industry is the raising of cattle, sheep, and goats. Various metals have been found, but mining is undeveloped. The imports and exports in 1900 were valued at 6,968,385 marks and 987,565 marks respectively; in 1901 about 10,000,000 marks and 1,250,000 marks respectively. In the latter year the chief imports, largely of German origin, were railway materials, bridges, cement, lumber, beer, and coal. The export increase in 1901 was chiefly guano, which in 1900 amounted to 610,000 marks; this industry is almost wholly controlled by an English establishment in Cape Town. The export of ostrich feathers is increasing in importance. In 1902 the railway from the port of Swakopmund to Windhoek was completed, and on June 20 was formally opened to traffic. This rather indirect line is 381 kilometres (237 miles) long and was built at a

cost exceeding $3,000,000. The construction of a harbor at Swakopmund will cost an additional $500,000. It was expected that the receipts of the railway would cover only the working expenses, leaving no margin for interest on capital. The anti-colonial press in Germany, remarking that in 1902 there were only 2223 Germans in the protectorate, that agriculture is practicable only in the north, and that the yearly exports have never exceeded $350,000, took a gloomy view of the prospects of the road.

GERMANY, an empire of central Europe consisting of twenty-five states and the imperial provinces of Alsace and Lorraine. The capital is Berlin.

Area and Population.—The empire comprises four kingdoms, six grand duchies, five duchies, seven principalities, three free towns, and two imperial provinces. The total area is 208,830 square miles. The census of December 1, 1890, showed a population of 49,428,470, and that of December 1, 1900 (final figures), 56,367,178, of whom 27,737,247 were males and 28,629,931 females. According to the latter census there were 55,587,642 German subjects, 778,698 foreigners, and 838 of unknown status. Among the foreigners were 371,022 Austrians, 88,053 Dutch, 69,760 Italians, 55,456 Swiss, 46,971 Russians, and 17,848 Americans. There were 51,883,131 persons reporting German as their mother tongue, 4,231,129 some foreign language, and 252,-918 German and a foreign language. The second class included 3,328,751 persons speaking Polish (including Massovian and Cassubian), 223,551 French (including Walloon), 141,061 Danish, 107,398 Czechish (including Moravian), and 106,305 Lithuanian. In the third class were 182,184 persons reporting German and Polish (including Massovian and Cassubian). As to religion the census of 1900 showed 35,231,104 Protestants, 20,321,441 Roman Catholics, 210,150 other Christians, and 586,948 Jews. There were 625 Protestants per thousand inhabitants, 361 Catholics, 10 Jews, and 4 of other religious proclivities. In the ten-year period, 1890-1900, the Protestants increased 13.6 per cent., the Catholics 15 per cent., and the Jews 3.4 per cent. Final figures for the largest cities are: Berlin, 1,888,848; Hamburg, 705,738; Munich, 499,959; Leipzig, 456,124; Breslau, 422,709. There were 33 cities of more than 100,000 population. Emigrants numbered 116,339 in 1892, 22,309 in 1900, and 22,073 in 1901. In the period 1892-1901 the total emigration amounted to 431,859, of whom the majority went by way of Bremen and Hamburg, and nearly six-sevenths came to the United States.

Government.—The chief executive authority rests with the King of Prussia under the title of "German Emperor"; William II., the present emperor, was enthroned in 1888. The heir-apparent is Prince Frederick William, born in 1882. The imperial ministers, appointed by the emperor, do not form a single body (cabinet), but carry on the work of their departments independently; all, however, are under the supervision of the imperial chancellor, who unlike them is not responsible to the imperial legislature. This is a bicameral body consisting of an upper house, or Bundesrath, which is presided over by the chancellor, and a lower house, or Reichstag. Members of the former (58) are appointed by the governments of the several states, and those of the latter (397) are elected by popular vote. The emperor convokes these bodies annually and has no veto on the laws enacted by them; without their knowledge or consent, however, he may exercise certain functions affecting the empire internationally, such as declaring war for defense, making peace, and concluding certain kinds of treaties. In 1902 the imperial chancellor and minister for foreign affairs (and president of the Prussian ministry) was Count Bernard von Bülow (appointed October, 1900); secretary of state for foreign affairs, Baron von Richthofen; secretary of state for the interior, Count von Posadowsky-Wehner.

Army and Navy.—The military forces of Germany are under command of the emperor. There is no imperial war office, but for this purpose the Prussian war office serves, while there are separate war ministers for the kingdoms of Bavaria, Saxony, and Württemberg, whose sovereigns, particularly the King of Bavaria, have considerable latitude in the management of their respective armies. Throughout the empire all Germans capable of bearing arms are liable to service in the army or navy for at least six years. The imperial army on a peace footing in 1901 numbered 24,145 officers and 580,023 men; in 1902, 24,292 officers and 581,519 men. The estimated strength on a war footing is over 3,000,000 trained men. Exclusive of the cost of the expedition to eastern Asia, the military appropriations in 1901 amounted to 673,655,570 marks, and the military budget for 1902 664,586,730 marks. See MANŒUVRES, MILITARY AND NAVAL.

A law dated June 14, 1900, provides that by 1916 the navy, exclusive of torpedo boats, special service vessels, gunboats, and training ships, shall comprise 38 battleships and 14 large and 38 small cruisers. From the rapid progress made in carrying out this programme, it appeared in 1902 that the battle fleet would be completed in 1908, and construction after that date would be merely the replacing of old

vessels, the age limit of which is twenty-five years. Exclusive of transports and old and non-effective vessels, the launched ships of the navy in February, 1902, were reported to comprise 10 first-class battleships, 5 second-class battleships, 8 old battleships, 2 armored cruisers, 16 protected cruisers, 19 coast-defense ships, and 177 torpedo boats, torpedo gunboats, and destroyers. Vessels recently launched include the first-class battleship *Schwaben*, 11,800 tons, August 19, 1901; first-class battleship *Mecklenburg*, 11,800 tons, November 9, 1901; armored cruiser *Prince Frederick Karl*, 8868 tons, June 21, 1902; protected cruiser *Frauenlob*, 2700 tons, March 22, 1902; protected cruiser *Arcona*, 2700 tons, April 22, 1902. The naval complement for 1901 numbered 31,038, of whom 1283 were commissioned officers; similar figures for 1902 were 33,408 and 1394.

Finance.—The monetary standard is gold and the unit of value the mark, worth 23.8 cents. The largest source of imperial revenue is customs. Deficits are made up by assessments on the several states, levied in proportion to population. The largest expenditures are on account of war and finance. The total revenue and expenditure in marks, according to the budget estimates, have been as follows for years ending March 31:

	1900	1901	1902	1903
Revenue	1,973,115,000	2,186,395,000	2,311,980,000	2,304,483,115
Expenditure	1,960,591,000	2,217,122,000	2,344,586,000	2,306,325,683

The budget submitted for the fiscal year 1904 balanced at 2,464,972,734 marks, but the estimated revenue included 219,921,739 marks to be raised by a loan. According to the budget for the fiscal year 1903, there would accrue from customs, 483,651,000 marks; from posts and telegraphs, 440,629,130; from excise, 335,432,690; stamps, 94,598,000; railways, 89,785,500; and federal contributions, 580,639,792. In this last class the assessment of Prussia was 355,497,405 marks; Bavaria, 63,144,874; Saxony, 43,326,266; Württemburg, 22,279,423; Baden, 19,263,181; Alsace-Lorraine, 17,732,564; and Hesse, 11,548,995. The largest expenditures (ordinary and extraordinary) shown in the 1903 budget were for the imperial army, 653,726,800 marks; the imperial treasury, 564,263,000; posts and telegraphs, 420,349,192; imperial navy, 217,038,089; imperial debt, 93,654,160; pensions, 74,494,701. For the fiscal year 1903 the Prussian budget balanced at 2,614,167,144 marks. Considerable difficulty has been experienced of late by both imperial and Prussian finance ministers to maintain budget equilibrium. In 1902 the imperial debt amounted to 2,295,667,700 marks; in addition there was a non-interest bearing indebtedness of 260,000,000 marks and outstanding imperial treasure bills aggregating 120,000,000 marks—total debt, 2,675,667,700 marks. The combined indebtedness of the several German states is about 11,000,000,000 marks.

Industries.—The fact that Germany has been transformed from a distinctively agricultural to an increasingly industrial country has not only brought into prominence the question of the nation's food supply, but, over the question of the tariff, has intensified the strife between farming interests on the one hand and manufacturing interests on the other, a strife that is as irreconcilable as it is inevitable. The very great transfer of productive labor from agriculture to industries has resulted in an overproduction of many kinds of merchandise, but an underproduction of food materials. The depression in the manufacturing industries, which began in 1900, was still keenly felt at the end of 1902. During these years the iron and steel industries, the condition of which has come to be regarded as a fairly good criterion of prosperity among an industrial people, suffered heavy losses which were far-reaching in their disastrous effects. The depression among other industries was less, but a comparison of the average dividends paid by joint-stock and limited-liability companies in 1900 and 1901 is of interest.

	1900	1901		1900	1901
	Per Cent.	*Per Cent.*		*Per Cent.*	*Per Cent.*
Earthenware, glass, and porcelain	13.64	12.41	Paper mills	10.96	8.13
Chemical manufactures	11.24	10.41	Electrical machinery and supplies	9.55	5.79
Breweries and distilleries	10.09	9.39	Textile manufactures	4.58	3.18

Official returns in metric tons (2204.6 pounds) for some of the leading German crops in 1900 and 1901 are: Potatoes, 40,585,317 and 48,687,261 respectively; rye, 8,550,659 and 8,162,660; oats, 7,091,930 and 7,053,153; wheat, 3,841,165 and 2,498,851; barley, 3,002,182 and 3,321,102. The estimated amounts of the principal minerals raised in 1900 and 1901 are reported, in metric tons, as follows.

	1900	1901		1900	1901
Coal	109,290,237	108,417,029	Kainite and other potassium minerals	3,050,631	3,537,074
Lignite	40,498,019	44,211,902	Copper ore	747,749	777,339
Iron ore	18,964,294	16,570,258	Lead ore	148,257	153,240
Zinc ore	639,215	642,496	Rock salt	926,563	985,919

In 1899 the value of minerals raised was 1,052,000,000 marks, and in 1900 1,262,000,000 marks. As indicated above, the iron and steel industries in Germany have not been prosperous during the last few years. In 1900 the production of pig iron amounted to 8,494,852 metric tons, valued at 549,100,000 marks, or $15.38 a ton; in 1901 the output fell to 7,835,204 tons and the value to 488,700,000 marks, or $14.85 a ton. The production of other metals in 1900 and 1901 respectively was: Zinc, 155,790 metric tons and 166,283 metric tons; lead, 121,513 and 123,098; copper, 30,929 and 31,376; silver, 415,735 kilogrammes and 403,796 kilogrammes; gold, 3055 kilogrammes and 2755 kilogrammes. The values in marks of pig iron products in 1900 and 1901 respectively were: Cast iron, 333,400,000 and 262,700,000; wrought iron and steel, 173,800,000 and 117,800,000; iron and steel ingots, 953,000,000 and 796,700,000. In the summer of 1902 a powerful syndicate was formed for the purpose of paying bounties on exports of iron and steel. These bounties would equal the difference between the current price in the German market and the price actually obtained abroad. Exports of iron and steel would thus be sustained at the expense of home consumers.

Commerce.—The special trade (that is, the foreign commerce exclusive of goods in transit through Germany) of the *Zollgebiet,* or customs territory, which embraces practically all the empire, has been in marks as follows:

	1898	1899	1900	1901
Imports	5,439,676,000	5,783,628,000	6,042,992,000	5,710,338,000
Exports	4,010,565,000	4,368,409,000	4,752,601,000	4,512,646,000

Included in these figures are specie and bullion, valued in marks as follows:

	1898	1899	1900	1901
Imports	359,030,000	300,532,000	277,378,000	289,103,000
Exports	253,999,000	161,360,000	141,220,000	81,198,000

Imports from and exports to (special trade) the countries of greatest commercial importance are stated in marks as follows for 1900 and 1901:

	Imports from—		Exports to—	
	1900	1901	1900	1901
United States	1,020,764,000	1,042,100,000	439,653,000	385,800,000
Russia and Finland	729,510,000	729,500,000	359,033,000	345,900,000
Austria-Hungary	724,332,000	693,300,000	510,730,000	491,500,000
Great Britain	840,661,000	657,800,000	912,219,000	916,400,000
France	305,500,000	281,800,000	277,600,000	249,900,000
British India	224,714,000	214,800,000	69,948,000	75,500,000
Netherlands	215,379,000	203,800,000	395,868,000	379,000,000
Argentina	234,600,000	200,800,000	64,000,000	54,200,000
Belgium	220,507,000	186,500,000	253,105,000	236,000,000
Switzerland	170,505,000	154,200,000	292,054,000	264,300,000
Brazil	115,500,000	113,900,000	45,700,000	35,500,000
Australia	122,200,000	107,900,000	47,900,000	52,200,000
Chile	89,400,000	100,700,000	39,900,000	34,000,000

The leading imports in 1901 were valued in marks as follows: Cereals, 658,500,000; cotton, 316,400,000; wool, 287,400,000; woollen yarn, 82,900,000; skins and hides, 228,300,000; wood, 193,300,000; coal, 177,000,000; cattle, 154,700,000; coffee, 148,700,000; seeds, plants, etc., 136,900,000; silk, 132,000,000; fish, 116,600,000; leaf tobacco, 112,300,000; eggs, 104,800,000; petroleum, 92,000,000; nitrate of soda (from Chile), 90,000,000; iron, 88,600,000; copper, 87,500,000; fats, 85,100,000. Among the principal exports in 1901 were: Chemicals, colors, drugs, etc., 362,000,000 marks; iron and steel wares, 283,200,000; coal, 262,600,000; drugs, etc., 234,700,000; iron, 234,000,000; cotton cloth, 219,800,000; woollen goods, 212,600,000; woollen yarn, 56,300,000; sugar, 203,300,000; machinery, 187,400,000; haberdashery, 183,000,000; silk tissues, 137,300,000; clothing, 133,400,000; colors, 127,100,000; skins and hides, 120,600,000; paper, 103,800,000; engravings and pictures, 96,900,000; leather, 80,000,000. In the first half of 1902 imports amounted to 2,840,000,000 marks, an increase of

88,170,000 marks as compared with the corresponding period of 1901; the exports were valued at 2,286,700,000 marks, an increase of 150,700,000 marks.

During the last few years, marking an unprecedented depression in German home markets, it was the country's firmly established export trade that sustained many of her industrial and commercial establishments. It is interesting to note that Germany's highest adverse balance of trade developed during 1898, 1899, and 1900, "the three years when the trade activity of the country was at its zenith."

The imports of the leading cereals in metric tons in 1901 and the excess of imports over exports are stated as follows: Wheat, 2,306,386 and 2,068,219; corn, 1,210,683 and 1,197,556; barley, 917,641 and 873,346; rye, 887,190 and 782,042; oats, 476,012 and 252,385; wheat flour, 40,884 and 10,222. These figures, which in connection with those of previous years show that the excess of cereal imports over exports is steadily increasing, lead to the conclusion that under existing agricultural conditions Germany will continue to be unable to produce her own food supply.

Communications.—In 1902 the total length of the German railways was 52,982 kilometres, of which 47,553 kilometres were government lines and 5429 kilometres were private lines. Length in kilometres of the government-owned railways in the most important states was as follows: Prussia and Hesse, 31,483; Bavaria, 5889; Saxony, 3027; Württemberg, 1896; Alsace-Loraine, 1733; Baden, 1634; Mecklenburg, 1106. In 1901 there were in the empire 131,011 kilometres of telegraph lines, with 483,542 miles of wire. The telegraph offices numbered 25,621, and post-offices 37,807.

HISTORY.

The sittings of the imperial legislature in 1902 were a part of the second session of the Reichstag elected for the five-year period June, 1898-June, 1903. On October 1, 1902, the 397 deputies comprising the Reichstag were divided into party groups as follows: Clerical Centre, 102; Social Democrats, 58; Conservatives, 52; Free Conservatives, 20; National Liberals, 53; Advanced Radicals, 27; Moderate Radicals, 14; Poles, 14; other groups and unaffiliated deputies, 57. These various groups in general may be said to form two great factions: the one, conservative, ofttimes reactionary, and leaning towards the Agrarian policy; the other, liberal, industrialistic, and even socialistic. Owing to the overrepresentation of the rural districts the groupings in the Reichstag are not a fair criterion of the voting strength of the several parties; for instance, in the 1898 election the Social Democrats cast about 2,120,000 votes, while the Clericals cast only 1,333,000. In 1902 the Reichstag reassembled January 8 and adjourned June 11; sessions were again begun on October 14 and adjourned just before the Christmas holidays. The leading topics of 1902 are treated in the following paragraphs.

The Tariff Bill.—The most important topic under discussion in the Reichstag during 1902 was the new tariff bill introduced by Chancellor von Bülow December 2, 1901, and referred to a committee of the Reichstag. The measure was a distinct concession to the Agrarians, whose demands, however, its provisions did not fully satisfy. The bill, therefore, met with two-fold opposition from the very beginning. It was assailed by the Social Democrats and by the Radicals, who represented in this instance, however, more than their own parties and acted really as spokesmen for the industrial interests which were seriously threatened by the increased scale of duties imposed by the new bill on food-stuffs and animal products. On the other hand, a coalition of the Agrarian party, the Catholic Centre, and the National Liberals (the last of whom were severely taken to task by the press of their own party for deserting to the enemy) demanded an increased scale of duties amounting virtually to a prohibitive tariff. This, the government, however much in sympathy it might be with the general tenets of the conservative parties, could not concede without destroying the possibility of renewing a number of important commercial treaties with several countries, which would expire in 1903. The Agrarian interests secured a majority in the committee and proceeded to substitute for the government proposals, a scale of their own. The contest between the government and the committee centred about the tax on cereals. The government measure provided for a minimum impost of 5.5 marks per 100 kilogrammes on wheat, 5 marks on rye and oats, and 3 marks on barley. The committee scaled the rates up to 6 marks on wheat and 5.5 marks on rye, barley, and oats. Duties were also imposed on fruits, vegetables, plants, and flowers. The duty on live animals was raised from 10 or 12 to 18 marks per hundred kilogrammes, on butter and cheese from 20 to 30 marks, on eggs from 2 to 20 marks. The tax on the various commodities was aimed directly against the neighboring countries and the United States. Russia would be a sufferer from the increased duties on rye and animal products, Austria-Hungary would be deprived of a market for barley, while the tax on fruits and plants would destroy a great part of the Italian trade. The United States would suffer in its cereal and meat trade. The government duties on manufactures were left practically intact. By the majority of the

people the measure was regarded with extreme dissatisfaction as marking a step backwards in the industrial evolution of Germany, and it was pointed out that in sacrificing the industries of the country, on whose growth the future of Germany largely depends, to the decaying agricultural interests, the government was merely making a bid for the support of the Conservative parties in carrying out its ambitious military and naval policy. The press of the country assailed the measure while it was still in committee, and on May 12, 1902, a meeting of 700 representatives of the chief municipalities at Berlin protested vigorously against the bill as inimical to the interests of commerce and industry. The discussion of the 946 articles of the measure proceeded very slowly in committee, and it was only on October 2 that it concluded its labors. On October 16 the Reichstag began the second reading of the bill. The government from the first was in a dilemma. It was confronted by the almost solid opposition of the Social Democrats, of the Radicals, and of the Conservatives, though these were actuated by different motives. The Social Democrats, in fear of any coalition that might make possible the passage of the measure, declared their intention of killing it by obstruction, and maintained that in view of the general opposition to the bill its enactment would be a flagrant breach of the principle of representation on the part of a Reichstag whose days were rapidly drawing to a close. For a time the government was helpless while a parliamentary battle marked by great animosity was waged by the Agrarians and Social Democrats, the latter sincerely opposed to the bill but still mindful of the opportunity of making political capital for the coming elections; the former merely biding their time until the government should be forced to make terms. Secret negotiations went on for months between Chancellor von Bülow and the leaders of the Conservative parties and resulted finally in a compromise by which the Agrarians obtained practically all their demands except in the case of the tax on barley imported for brewing purposes, which was allowed to stand at 3 marks. This was a concession to the Bavarian brewing interests. According to general opinion the emperor's influence was responsible in large measure for the coalition, and the support of the Clerical Centre was purchased, it was asserted, by the promise of liberal favors to Catholic interests. Formal announcement of the coalition was made on November 14, 1902, when it was moved by the Conservatives and carried that the Reichstag in voting should proceed by ballot instead of by roll call. This was done to overcome the tactics of the Social Democrats, who by forcing a division on every question, succeeded in delaying action. Progress, however, was still slow, and a resolution was introduced by Baron Kardorff on November 27, providing that the bill be voted on as a whole instead of by paragraphs. This aroused stormy debates in the Reichstag, in the course of which Herr Singer, one of the socialist leaders, was suspended. On November 28 the Reichstag adjourned till December 9. On December 11 the Kardorff resolution was adopted, and on the 14th the entire bill was passed by a vote of 202 to 100. On the 18th the bill was passed by the Bundesrath. The action of the majority in violating parliamentary precedent and in resorting to what practically amounted to gag rule aroused violent criticism throughout the country. In an article contributed to a liberal paper of Berlin, the venerable Professor Theodor Mommsen declared that the enforcement of the gag rule was the beginning of a *coup d'état* "by which the emperor and the Reichstag are to be subjected to the absolutism of an alliance between the Junkers and the priests."

Alsace-Lorraine.—On May 10, 1902, Emperor William issued an edict looking toward the repeal of the "dictator paragraph" in the fundamental laws of the empire, applying to Alsace-Lorraine. This article gave to the Staatthalter special dictatorial powers for public security, authorizing him to "adopt without delay in the event of danger to the public safety all measures that he considered requisite," and in particular permitting him to use the military garrison for police purposes, to suppress offending newspapers, and without warning to expel any inhabitant from the Reichsland. The "dictator paragraph" had always been a source of considerable irritation to the inhabitants of Alsace-Lorraine. It is well to point out, however, that the treatment accorded them by the imperial government has been in marked contrast to that received by the people of German Poland at the hands of the Prussian government. In the one case conciliation has prevailed; in the other, antagonism. Basically this difference is due to the inherent discordance between Teuton and Slav. The majority of the Alsace-Lorrainers are German in blood and language.

Colonies.—German colonial acquisition began in 1884. The colonies, or protectorates, as the government chooses to call them, are Togoland, Cameroon, German Southwest Africa, East Africa (German), New Guinea (German), Caroline Islands (with the Pelews and Mariannes), Samoa (German), Bismarck Archipelago (*qq.v.*), Marshall Islands, Solomon Islands (in part), and Kiao-Chau. The total estimated area is about 1,025,000 square miles and the estimated population about 12,800,000. According to an unofficial report the total number of Germans

in these colonies in 1902 was only 4956, most of whom belonged to the official and military classes; the other white population was about 2000. In general the trade, though small, is expanding, but the increase has not been in proportion to that of the imperial subventions required for colonial administration. In 1900 the total imports to and exports from the colonies (excepting Kiao-Chau) were valued at about 28,930,000 marks and 16,871,000 marks, respectively. None of the colonies is self-supporting; for the fiscal year 1903 the imperial contributions made to balance the budgets aggregated over 18,467,000 marks, exclusive of 12,168,000 marks for Kiao-Chau. In 1902 the colonial policy of the government continued to receive public criticism and parliamentary indifference, not to say disapproval; against it in the Reichstag stand the Liberal and socialist elements.

Sufficient interest, however, existed to make possible a colonial congress, which convened in Berlin on October 10, 1902. Careful consideration was given to pertinent colonial topics, including geography, ethnology, languages, sanitation, animal diseases, native labor, and the general betterment, from both the colonial and the imperial point of view, of Germany's dependencies. Though it was held that Germany is quite able to maintain a sufficiently strong fleet for the protection of the existing colonies, the sense of the congress was unfavorable to further territorial acquisition. Emphasis was laid upon the need of commercial development. Remedies were suggested for the better preservation of their own nationality among German emigrants throughout the world. Various reforms were recommended for some of the colonies, especially a methodical colonization of Southwest Africa; it was conceded, however, that the German colonies, where for the most part the climate is unfavorable to European residents, have very little to offer the German immigrant. Moreover, it must be admitted that most Germans leave their native country in order to better their economic conditon and to escape from the conscription and other exactions of the imperial administration, none of which ends are effected by going to the German colonies. See BRAZIL (paragraphs on History).

Prussia. The Polish Question.—The ambition of the imperial government as well as of the Prussian is to "Germanize" the foreign ethnic elements of the empire—the Alsatians, the Danes of Schleswig, and the Poles. To carry out this design in Prussian Poland, Bismarck conceived what has been called the policy of "internal colonization," that is, the purchase of Polish lands and their sale or rental to Germans. Prussian apppropriations for carrying out this plan, between 1886 and 1902, aggregated about 209,700,000 marks. Nevertheless the Germanization of Prussian Poland did not progress very rapidly, and so further measures were taken by the government. These included the change of geographical names from Polish to German, and the establishment of German as the language of the courts and of the schools. In the case of the schools, however, Polish was tolerated in religious instruction, but when this was also taken away in 1901, Polish discontent became serious and culminated in the Wreschen episode in December, 1901, when Polish children were flogged for refusing to receive instruction in the German tongue. There were numerous public demonstrations against the Germans. At the end of 1901 the opinion prevailed that the Prussian government would turn to a course of conciliation, but this was shown to be incorrect when, at the opening of the Landtag, January 8, 1902, the prosecution of the Polish policy was voiced in the speech from the throne. On the 27th of the following May, Count von Bülow, as president of the Prussian council of ministers, introduced in the Landtag a bill for the strengthening of Germanism in the provinces of Posen and West Prussia. The bill provided for the appropriation of 250,000,000 marks, of which 100,000,000 marks were to be devoted to the purchase of Polish estates to be converted into crown domains and, in the case of waste lands, to be afforested. The remaining 150,000,000 marks were for the settlement of small German proprietors in the Polish provinces. The government held that the purpose of the measure was merely to prevent the Polish element from forcing back the German, though in the upper house it found apology in the charge that the Poles were preparing a separatist movement looking toward the reconstruction of the Polish kingdom. The Polish deputies, who after protest left the chamber in a body, held that the real object of the bill was the expropriation and impoverishment of the Polish population. Supported by the Conservatives and the National Liberals, the measure was enacted in July, 1902. Thus, from 1886, the total Prussian appropriations in the interest of Germanism in the Polish provinces amounted to about 459,700,000 marks. The 1902 measure provoked much bitterness, which was intensified by remarks of Count von Bülow and the German emperor. To an interviewer, early in June, the former, after declaring that German policy must be resolutely national, made an analogy much commented upon abroad and by the Poles much protested against at home: "If in this park I were to put ten hares and five rabbits, next year I should have fifteen hares and one hundred rabbits. It is against such a phenomenon that we intend to defend in Poland national unity."

About the same time King William, at the meeting of the Order of Teutonic Knights at Marienburg, took occasion to renew the charges against his Polish subjects and to speak with bitterness of "Polish arrogance" (Uebermuth). This angered not only the Poles of Prussia, but those of Russia and Austria, and it provoked in the Reichsrath an insulting outburst on the part of M. Klofac and other Radicals. The Polish question, indeed, came to be regarded as a factor of weakness in the Triple Alliance, but from the point of view of Prussia herself it was hardly expected to culminate in any serious disruption.

Public criticism of the German policy, as embodied in the law of 1902, represented divers points of view. Some held that the measure was unconstitutional, a view shared by Herr Richter, the Radical leader, who, however, was not in sympathy with the Poles. Others saw in it the beginning of state ownership of land in Germany, a point emphasized by the *Freisinnige Zeitung*, of Berlin. Many of the Catholics regarded it chiefly as a measure for the propagation of Protestantism, while the *Germania*, a Roman Catholic organ, opposed it not only on this ground but because of its alleged injustice to the Poles and unconstitutionality as well.

The Poles have set themselves steadfastly against "Germanization." In August, 1902, at a meeting of over 2000 Poles in Berlin, a resolution was adopted expressing a determination to "retain Polish land in Polish hands and to secure Polish education for Polish children." As stated above, the Prussian government has met with little real success in its policy. In many cases German settlers in the Polish provinces have become "Polonized," or, on account of uncongenial surroundings, have returned to their own districts. The Poles, moreover, have increased rapidly, not only in number but in thrift and education. Furthermore, there has been among them in the last quarter of a century a notable increase in the feeling of solidarity. Not more than twenty-five years ago much political bitterness existed between the Progressives and the Conservatives. The latter represented the old aristocracy and an almost fanatical Catholicism and still idealized the former kingdom of Poland. But, through various causes, the animosity between the two parties has been reduced to a minimum.

In the early part of September, Emperor William, accompanied by the empress, the heir-apparent, and the imperial chancellor, visited Posen, ostensibly for the purpose of dedicating a statue to the memory of Emperor Frederick III., but in reality to encourage the Germans in their struggle against the Poles. Extraordinary precautions were taken for the emperor's safety, and, in addition to hundreds of police, eight thousand infantry were present in the city. The royal entry was made amidst the wildest demonstrations on the part of the German inhabitants, but the Polish population abstained from any share in the celebration. All of the Polish nobility with but one exception, it was stated, left the city. The burgomaster's address of welcome had been carefully edited at Berlin and contained scarcely an allusion to the race question.

Other Events.—Considerable discussion was aroused by the action of Emperor William in connection with an incident in the internal politics of Bavaria. The Roman Catholic majority in the Bavarian chamber, which was at odds with the government over its attitude towards the appointment of a Catholic professor in the University of Würtzburg, showed its resentment by refusing a vote of 100,000 marks asked by the prince regent for the purchase of certain valuable art collections. Following the action of the Bavarian chamber, Emperor William telegraphed to the prince regent, offering the necessary sum from his private funds and expressing in warm terms his indignation at the "ingratitude" shown by the diet to the "noble house of Wittlesbach." The offer was declined by the prince regent upon the ground that the money had already been secured. In Bavaria the emperor's action was severely condemned as an indication of the general tendency of the imperial government to intrude upon functions of the various members of the empire. The occurrence was of special significance in the case of Bavaria, which is still the least reconciled to the imperial constitution and Prussian leadership. German sentiment throughout 1902 was hostile to Great Britain. Early in January the British policy in South Africa was fiercely attacked in the Reichstag and Mr. Chamberlain was denounced in the most scathing terms. The comments of the press on the occasion of the emperor's visit to King Edward at Sandringham in November were also in line with this spirit. (For the Anglo-German alliance against Venezuela, see VENEZUELA.) On June 28 formal announcement was made of the renewal of the Triple Alliance (*q.v.*). On August 6 Emperor William met the Czar at Reval in the Baltic provinces.

GIBRALTAR, a rocky promontory commanding the entrance to the Mediterranean Sea is a British crown colony. It has an area of a little less than two square miles, and a population (1901) of 27,460, including a garrison of 5349 men. The governor and commander-in-chief in 1902 was Gen. Sir George Stuart White (since 1900). Revenue amounted in 1901 to £71,106 and the expenditure to £63,111. The

public debt is £19,253. Commerce is largely in transit and the port is free. A new harbor, dockyard, and coaling station are under construction at a cost of about £4,800,000. The actual present value of Gibraltar to Great Britain has been much questioned of late. A year ago a sensation was caused by a declaration in the House of Commons that the new docks and coaling mole, which the admiralty is constructing at enormous expense, were within the range of fire of Spanish batteries on an adjoining headland. More recently a French writer has declared that the fortress would be no longer capable of preventing the juncture of the French Northern and Mediterranean squadrons, and furthermore that the promontory has been so thoroughly undermined by the galleries and magazines with which it has been honeycombed, that the British engineers have advised against the repeated discharge of guns from the same side of the rock, and that, indeed, those of the largest calibre are allowed to be fired only one at a time.

GLADSTONE, John Hall, an English scientist, died October 7, 1902. He was born in London, March 7, 1827, and received his education at University College, London, and under Liebig, at Giessen. Thereafter he devoted his time and means to investigation, and was recognized as one of the leaders in chemistry, physics, and kindred sciences. He became a fellow of the Royal Society in 1853, and published in its *Transactions* and in those of the Chemical Society the results of his researches extending over many years. The Davy medal of the Royal Society was awarded him in recognition of his optical and electrical discoveries. His services were frequently called into requisition in public works, as a member of the royal commission on lights, buoys, and beacons from 1858 to 1861, a member of the guncotton commission of the war office from 1864 to 1868, Fullerian professor of chemistry at the Royal Institution from 1874 to 1877, first president of the Physical Society from 1874 to 1876, president of the Chemical Society from 1877 to 1879, and a member of the school board for London from 1873 to 1894. He published: *Life of Michael Faraday* (1872); *Spelling Reform from an Educational Point of View* (1878); *Chemistry of Secondary Batteries* (1883).

GODKIN, Edwin Laurence, an American editor and publicist, died at Greenway, Devon, England, May 20, 1902. He was born at Moyne, County Wicklow, Ireland, October 2, 1831, and in 1851 graduated at Queen's College, Belfast. During the Crimean War (1854-56) he was correspondent in Turkey and Russia of the London *Daily News*. He visited the United States in 1856, made through the Southern States a horseback tour described in letters to the *News*, studied law in the office of David D. Field in New York City, and in 1859 was admitted to the bar. After some years of legal practice, he traveled in Europe because of ill-health, and upon his return to the United States was a correspondent of the London *News* and an editorial writer for the New York *Times* until 1865. In July of that year he established and became the editor of the *Nation*, a weekly critical journal in the fashion of the London *Spectator*. Of this he was sole proprietor until 1866, when he associated with himself Frederick L. Olmsted and James M. McKim. When, in 1881, the *Nation* began its appearance as the weekly issue of the New York *Evening Post*, he became a proprietor and the editor of the joint periodical, and so continued until his formal retirement in 1899. From Harvard he received the degree of M.A. (1871), and from Oxford that of D.C.L. (1897). His publications include a *History of Hungary, A.D. 300-1850* (1856); a work on *Government* (1871, in the "American Science Series"); *Reflections and Comments*, a selection from *Nation* articles; *Problems of Modern Democracy*, reprinted contributions from various magazines; and *Unforeseen Tendencies of Democracy*, collected papers originally written for the *Atlantic Monthly*. He is reckoned among the chief of American editors, not as the director of a complex journalistic enterprise, but as a leader-writer of uncommon skill and ease. His style was flexible, pointed, peculiarly suited to narrative description, and seasoned with a certain effective humor. His judgments, though at times questionable, were remarkably acute; his estimates singularly just. Highly trained in problems of finance and government, in politics stoutly independent, he attacked the protective tariff, furthered reconstruction, and strove for reform, particularly in the currency and the civil service. His warfare against Tammany contributed greatly to the overthrow of that organization in 1894, and involved the *Post* in numerous libel suits. To the policy of so-called "expansion" he was sincerely and constantly hostile, and during the McKinley administration declared that there was a constant evasion of the civil service law. Not unnaturally he was often misrepresented and misunderstood, but his position as thinker, writer, and "champion of good causes and high ideals" is now generally conceded.

GOLD. The gold mining industry of the United States made some advance during 1902, the total output, as estimated by the director of the mint, being $80,853,070, against the final return for 1901 of $78,666,700; the absolute increase was $2,186,370, or about 2.8 per cent. Colorado, which produces at present about one-third of

the total for the entire country, showed a slight decrease from the yield of 1901. The production in 1901 and 1902 (estimated) was distributed among the States and Territories as follows:

	1901		1902	
	Troy Ounces.	Value.	Troy Ounces.	Value.
Alabama	150	$3,100	139	$2,873
Alaska	333,096	6,885,700	378,476	7,823,798
Arizona	197,515	4,083,000	201,000	4,155,039
California	817,121	16,891,400	828,419	17,124,941
Colorado	1,339,673	27,693,500	1,330,420	27,502,429
Georgia	6,023	124,500	4,953	102,388
Idaho	90,427	1,869,300	100,000	2,067,183
Michigan	1,490	30,800	1,490	30,800
Montana	229,495	4,744,100	200,000	4,134,365
Nevada	143,374	2,963,800	170,000	3,514,212
New Mexico	33,202	686,400	33,202	686,400
North Carolina	2,685	55,500	4,440	91,783
Oregon	87,960	1,818,100	90,000	1,860,465
South Carolina	2,259	46,700	7,156	147,928
South Dakota	313,446	6,479,500	357,861	7,398,057
Texas	29	600	29	600
Utah	178,513	3,690,200	180,000	3,720,930
Virginia	256	5,300	215	4,444
Washington	28,802	595,500	21,000	434,109
Wyoming	614	12,700	2,188	45,230
Other States	.....	.....	150	3,101
Total	3,805,500	$78,666,700	3,911,268	$80,853,070

New developments of encouraging character were reported in the Silverton, Clear Creek and Leadville districts of Colorado, but they were offset by the diminished output of some of the older mines, owing to exhaustion of resources. In the Cripple Creek district one of the richest mines will soon be abandoned; while other mines have reached such depths as seriously to increase the cost of operation and thus to diminish the amount of ore that can be extracted at a profit. A plan was proposed in 1902 for the construction of a tunnel to drain the lower levels of the Cripple Creek mines—an improvement that would permit much deeper development. Increased activity in California was due not so much to new discoveries as to the advance made in mining methods. Lower fuel expenses, owing to the substitution of water power and petroleum in the place of coal, the wider use of the cyanide process, and the demand for low-grade gold ores as a flux in copper smelting, have greatly extended the field of operations. The recent introduction of dredges for working auriferous gravels has also contributed to the progress. The discovery of gold at Thunder Mountain, Idaho, was followed by a wild rush of prospectors from the other mining camps in the West. Deposits of low-grade ore were found, but their value has not as yet been fully tested. The Cape Nome region contributed the larger part of the output credited to Alaska.

Among foreign countries the Transvaal in 1902 made the greatest progress, although it recovered only a part of the ground lost during the Boer war. When operations are resumed in full force, this country will become without doubt the leading gold producer of the world. The auriferous deposits are of enormous extent and so regular in their metallic tenor that, before mining, the value of the ore can be determined with a fair degree of accuracy. In this connection it may be stated that an eminent authority on the South African mines—Mr. John Hays Hammond—has estimated the yield of the principal gold-bearing formation or reef within practicable mining depth at $3,000,000,000 (*Transactions of the American Institute of Mining Engineers,* 1902), and this total must be increased largely if the other deposits are included. The natural conditions in the Transvaal are very favorable for deep mining, as the increase in temperature with depth amounts to only 1° F. for each 200 feet—an abnormally low average. It is thought that the workings may be carried down a vertical distance of 8000 feet, and possibly a depth of 12,000 will be reached before operations are finally checked.

Australia, with New Zealand, probably surpassed the United States in 1902, the total output being estimated at more than $81,000,000. Mining was greatly hampered by the general drought, which doubtless would have brought about a decrease had it not been for the steady progress made in developing the rich deposits of Western Australia. The Kalgoorlie field was the most prominent producer in this state. The Canadian mines reported a smaller output than in 1901; the loss was due principally to the exhaustion of rich claims in the Klondike, where there have been no new discoveries of importance. Quartz mining was undertaken in a few localities, and some advance was made towards introducing more economical methods of working

the river gravels. Explorations have shown great areas of auriferous ground, which under ordinary conditions would richly repay working.

The world's output of gold in 1901 and 1902 is shown in the following table compiled from statistics collected at the United States mint and by the *Engineering and Mining Journal:*

	1901	1902		1901	1902
United States	$78,666,700	$80,853,070	Australia, including New Zealand	$77,058,938	$81,315,100
Canada	24,462,222	19,500,000	All other countries	31,850,134	34,439,349
Mexico	10,329,316	9,067,979			
Russia	25,911,744	29,971,500			
India (British)	9,422,855	9,808,000	Total	$262,641,853	$299,866,343
Transvaal	4,989,944	35,211,345			

GOLD COAST, a British crown colony on the Gulf of Guinea between the Ivory Coast (French) and Togoland (German), has an area roughly estimated at upwards of 75,000 square miles and a population supposed to number about 2,000,000. The protectorate of Ashanti and the protected district known as the Northern Territories were incorporated in the colony in September, 1901. The area of the colony, as it was formerly comprised, was placed at 40,000 square miles and the population at 1,500,000. The governor in 1902 was Sir Matthew Nathan (since 1900), resident at Accra (population over 16,000). The revenue, including grants, and the expenditure amounted to £585,583 and £515,657 respectively in 1900, and £693,893 and £469,459 in 1901. In 1900 total imports and exports were valued at £1,294,963 and £885,446 respectively, and in 1901 £1,801,077 and £559,733 respectively. In the latter year the leading exports were: Palm oil, £178,174; rubber, £104,030; palm kernels, £89,794; timber, £55,299; cacao, £42,837. The principal imports are textiles, alcoholic liquors, and hardware. The cultivation of cacao is a promising industry. It was expected that in 1903 a considerable increase would be made in the gold export. A railway from Sekondi, on the coast, to Tarkwa, in the gold region, and thence to Kumassi, a total distance of 180 miles, is under construction. At the end of 1902 the line was completed to Obbuassi, 126 miles from Sekondi.

According to a report published in the autumn of 1902, the British during the four years of their occupation of the Northern Territories had brought about a condition of peace and order in place of raids and tribal feuds. Road-making had progressed favorably and there was little trouble in the collection of taxes. The most important factor in the future development of this part of the country was said to be the opening of the river Volta, which can be made navigable for 400 miles, or to within three days' journey of Gambaga. The expedition, which earlier in the year it was necessary to make against the wild Tianse tribe, was successful after operations lasting about a month. Rumors in 1902 of a threatened uprising of the Bekwais, the tribe that assisted the British in putting down the insurrection of the Ashantis and Adansis in 1900, appeared to be without foundation.

GOLF. The season of 1902 saw a continuance of the vogue attained within the past few years in the United States, and as a special feature, the invention of a new and livelier ball which altered considerably the character of the game. In a review of American players, W. J. Travis, of Garden City, N. Y., although defeated for the amateur championship, stands in a class by himself, by virtue of his consistently superior game throughout the season. The tournament for the national amateur championship was played over the Glenview course, Chicago, July 15-19, under the modified rules of play adopted for this contest by the United States Golf Association in February. The medal play was changed to 18 holes instead of 36, and the number to qualify raised from 32 to 64. In the match play all preliminary rounds were at 18 holes and the final at 36, instead of all being at 36 as formerly. Another change was in the method of drawing, whereby, instead of seeding the draw as had been tacitly permitted, pairings were decided by scores at medal play. According to the scores made, 1 paired with 33, 2 with 34, 3 with 35, and so on, and the pairs were arranged with the view of keeping the players with the best scores separated until the last rounds. The championship was won by Louis N. James, of Chicago, who defeated E. M. Byers, of Allegheny, Pa., by 4 up and 2 to play. In the semi-final round Byers defeated D. P. Fredericks, Oil City, Pa., 4 up and 3 to play; and James disposed of F. O. Reinhart, Baltusrol, 2 up and 1 to play. Travis was defeated by Byers in the second round, 3 up and 2 to play. The national woman's championship, contested at Brookline, Mass., September 30-October 4, was won by Miss Genevieve Hecker, N. Y., the winner in 1901, who defeated Miss L. A. Wells, Brookline, 4 up and 3 to play. The open tournament (for amateurs and professionals, medal play at 72 holes), was held at Garden City, N. Y., October 10 and 11. Lawrence Auchterlonie, professional of the Glenview Club, Chicago, was first (307), and W. J. Travis, amateur, and Stewart Gardner, professional, Garden City, tied for

second place at 313. In the Metropolitan championship Travis won, defeating F. A. Marcellus, 11 up and 10 to play. The woman's championship in the metropolitan tournament was won by Mrs. E. A. Manice, Baltusrol, who defeated Miss Helene Hernandez, Essex County (N. J.) Country Club, 7 up and 6 to play.

In intercollegiate golf there were two tournaments, the first one over the Garden City course, May 6-10, and the second at Morristown, N. J., October 21-25. In the first, Yale defeated Harvard (by the intercollegiate system of scoring, 1 point for each match and half the number of holes winner is up) 13—5. The individual championship went to C. Hitchcock, Jr., Yale, who defeated H. B. MacFarland, Pennsylvania, 11 up and 10 to play. In the second, Harvard defeated Princeton for the team championship, 10—6. H. C. Egan, Harvard, won the individual honors, defeating MacFarland by 1 up.

GORE, Charles, an English prelate, consecrated Bishop of Worcester February 23, 1902, was born in 1853, received his education at Harrow and at Balliol College, Oxford, and in 1875 became a fellow of Trinity College, Oxford. From 1880 to 1883 he was vice-president of Cuddeson Theological College, and in 1884, upon the foundation of the Pusey Library at Oxford, became head of the clerical staff. In 1893, on account of protests against certain of his views, published especially in the volume of essays, *Lux Mundi*, of which he was editor and one of the chief contributors, he resigned, and accepted the vicarage of Radley near Oxford. The following year he was appointed canon of Westminster. He had been regarded as a figure in university life, and it was feared that he might not appeal to the masses, but he proved, on the contrary, a most popular preacher. The views which had already met with antagonism he continued to advance, and in 1901 protests were made against the confirmation of his election as bishop of Worcester. The anti-ritualist agitator, John Kensit (*q.v.*) objected at the public ceremony (January 22, 1902), on the ground that the semi-monastic, celibate society, the Community of the Resurrection, which Gore had founded, violated Protestant traditions. At this ceremony and at the later consecration occurred protracted and disgraceful riots which served only to place the objectors in the position of lawbreakers rather than of reformers of evil tendencies in the church. Bishop Gore's most important works are: *The Church and the Ministry* (1889); *The Mission of the Church* (1895); *The Body of Christ* (1901); *Roman Catholic Claims*, a controversial treatise (1889).

GORMAN, Arthur Pue, Maryland politician, after several years' retirement from participation in national politics, was elected in 1902 to succeed George L. Wellington in the United States Senate. He was born in Howard County, Md., March 11, 1839, was educated in the public schools, and gained his first experience in political life as a page in the United States Senate. His long service (1852-66), through a critical period in the nation's history, and at a time when the Senate contained some of America's greatest legislators, gave him a political education that could not be excelled. In 1866 he was appointed by President Johnson collector of internal revenue for the fifth district of Maryland. In this position he showed himself so capable an official that in 1869 he was appointed director of the Chesapeake and Ohio Canal Company, of which he has been president since 1872. His political career in Maryland began in 1869 with his election, as a Democrat, to the house of delegates, where he served by re-election until 1875, and was chosen speaker in 1873-75. From 1875 to 1881 he was a member of the State senate, becoming at the same time the Democratic leader of that body. In 1880 he was elected to the United States Senate, where he began a notable service that lasted until 1899. Since 1881 he has been in complete control of the political organization in Maryland. In national Democratic politics he has been an important factor, although openly in disagreement with its dominating policy, whether that happened to be the conservative control of the Cleveland Democracy or the radical populism of the Bryan leaders. As the particular champion of special interests he so remolded the Wilson Tariff Bill after it was sent to the Senate in 1894, as to make it practically a protective measure, which President Cleveland refused to sign. His hostility to the second Cleveland administration, many of whose failures in carrying out its legislative programme may be laid at his door, was no more marked than his opposition to "Bryanism," which led him to withdraw after the Chicago Convention of 1896 from all actual leadership in the organization.

GOTTI, Girolamo Maria, an Italian prelate of the Roman Catholic Church, was appointed in 1902, by Pope Leo XIII., Prefect of the Propaganda, or head of the missions. The selection was of particular interest in the United States since it is considered by the church a missionary country. Cardinal Gotti was born March 26, 1834, in Genoa, where his father was a dock laborer. He developed a talent for physical science and mathematics, and after his ordination to the priesthood in the Carmelite Order, was made professor of mathematics and natural philosophy at the College of St. Ann, Genoa. He rose rapidly in his order, and became provincial and an adviser of the Roman congregations. Several diplomatic missions to South

America, which he fulfilled with success, especially in Brazil, gave him prominence among the diplomats of the church. In 1895 he was created a cardinal, and later prefect of the congregation of bishops and regulars. His selection was a distinct tribute to his ability, for the office has come to be regarded almost as an appanage of the secular cardinals. Also since he came to his new office without any affiliations, never having engaged in politics, his appointment seemed sure to prove in every way acceptable.

GRANT, George Monro, a Canadian author, educator, and clergyman, died in Kingston, Ont., May 10, 1902. He was born at Albion Mines, Nova Scotia, December 22, 1835, and was educated at the University of Glasgow, which in 1877 granted him the degree of D.D. In 1860 he was ordained in the Presbyterian ministry, and occupied pastorates in Georgetown, P. E. I., and at St. Matthew's Church, Halifax, the latter an incumbency of fourteen years. He became principal of Queen's College, Kingston, Ont., in 1877 and raised it from a state of poverty and unpopularity to its present place among the three great universities of Canada. In 1889 he was chosen moderator of the general assembly of the Presbyterian Church of Canada, became president of the Royal Society of Canada in 1891, and from 1894 to 1896 was president of St. Andrew's Society, Kingston. Dalhousie University of Halifax conferred upon him the degree of LL.D. in 1892. Together with Sir Sandford Flemming he made the overland journey to British Columbia in 1872, which he described the next year in *Ocean to Ocean.* His other works include *New Year Sermons* (1865-66), *Reformers of the Nineteenth Century* (1867), *Picturesque Canada* (1882), *Our Five Foreign Missions* (1887), *Advantages of Imperial Federation* (1889), *Our National Objects and Aims* (1890), *The Religions of the World in Relation to Christianity* (1894), *The Religions of the World* (1895).

GRAPHITE. See Mineral Production.

GRAY, Horace, a former associate justice of the Supreme Court of the United States, died at Nahant, Mass., September 15, 1902. He was born at Boston in 1828, graduated at Harvard University in 1845, at the Harvard Law School in 1849, and was admitted to the bar in 1851. In 1854 he was appointed reporter to the Massachusetts Supreme Court, and held that position for seven years. During the latter part of that period he was a partner of the late Ebenezer Rockwood Hoar. His reputation as an able lawyer grew rapidly, and in 1864 he was appointed an associate justice of the Supreme Court of his State, in 1873 succeeding to the chief justiceship, and continuing in that office for nine years. His eighteen years' experience on the Massachusetts bench gained for him a wide reputation as a judge, his decisions being remarkable for their clearness and forcible style. In 1882 he was appointed to the Supreme Court of the United States by President Arthur, and occupied that position until his resignation in August, 1902. Justice Gray was a man of imposing presence, and his manner on the bench was unusually dignified. He belonged to the political school of thought which upholds a broad, or "loose," construction of the federal constitution, and his opinions in the insular cases that arose (1901) as a result of the acquisition of new possessions by the United States supported the contentions of the Washington administration. In his earlier years he was a member of the Free Soil party.

GREAT BRITAIN. The United Kingdom of Great Britain and Ireland covers an area of 120,979 square miles, with an estimated population in 1902 of 41,952,510. The regular decennial census of March 31, 1901, gave the number as 41,454,578, of whom 30,805,406 were in England, 1,720,609 in Wales, 4,471,957 in Scotland, and 4,456,546 in Ireland. The United Kingdom is the nucleus of the British Empire, the executive power of which is vested in the sovereign acting through his ministers. It is a strictly limited monarchy, however, in that the real power is in the hands of Parliament, which has complete legislative control, so that while the king may command, it is the legislative body that directs. The ministry in office during 1902 represented politically the Unionist party, elected in 1895 and re-elected in 1900. The main officials at the end of the year were: In the cabinet—First lord of the treasury and lord privy seal, Arthur James Balfour; lord high chancellor, Earl of Halsbury; lord president of the council, Duke of Devonshire; home secretary, Mr. Akers-Douglas; foreign secretary, Marquis of Lansdowne; colonial secretary, Joseph Chamberlain; secretary for war, William St. John F. Brodrick; secretary for India, Lord George Hamilton; first lord of the admiralty, Earl of Selborne; chancellor of the exchequer, C. T. Ritchie; lord chancellor of Ireland, Lord Ashbourne; chief secretary for Ireland, George Wyndham; chief secretary for Scotland, Lord Balfour of Burleigh; president of the board of trade, Gerald Balfour; president of the local government board, Walter Long; president of the board of education, the Marquis of Londonderry; president of the board of agriculture, Robert William Hanbury; postmaster-general, Austen Chamberlain; lord lieutenant for Ireland, the Earl of Dudley. Parliament is divided into two chambers, the House of Lords

and the House of Commons. The former consists of peers who hold their seats by hereditary right or through patents of nobility granted by the sovereign; or because of their office, as in the case of the English bishops of the Established Church. Irish and Scotch peers are not entitled to a seat, but elect a representative few of their number for life in the case of the Irish nobility, and for the term of Parliament, in the case of the Scottish peers, to represent them in the upper house. English and Scottish peers are further disqualified for election to the House of Commons while non-representative Irish peers are eligible. The lord high chancellor of England, Hardings Stanley, Earl of Halsbury, is the speaker of the House of Lords. The House of Commons contains 670 members elected by popular vote. The Protestant Episcopal Church is the established church of the country, the king being its supreme governor. The religions of all denominations and sects are equal with the Established Church before the law.

Finance.—According to the budget for the financial year April, 1902, to March, 1903, presented by the chancellor of the exchequer on June 4, 1902, the revenue estimates amounted to £147,785,000, and the expenditure was placed at £176,359,000, a nominal deficit of £28,574,000. To cover the deficiency a duty was placed on imported corn, grain and meal, which was estimated to produce £2,650,000; the income tax was raised to 1s. 3d. in the pound, which would bring £2,000,000; and a balance deficit of £23,924,000 was to be met out of the consols loan. This loan was authorized by the Loan Act of 1901, the total amount of which was £56,553,000. After all the appropriations of the House of Commons had been met, the sum of £5,996,000 was set aside for contingencies, and for redemption of unfunded debt. The national debt of Great Britain, consisting of funded, unfunded, and other liabilities, amounted to £731,214,583 in 1902. The permanent debt, so termed because the government is not compelled to liquidate it at any fixed time, consisted on March 31, 1902, of the following stock: 2¾ per cent. consols, £499,958,418; 2¾ per cent., 1905, £4,588,291; 2½ per cent., £31,394,669; Bank of England debt, £11,015,100; Bank of Ireland debt, £2,630,769; 2¾ per cent. consols not included in the annual charge, £60,000,000, making a total of £609,587,248. The terminable annuities, etc., made up a total of £63,190,859. The unfunded debt, made up of loans for fixed short periods, consisted of nine and twelve months' treasury bills amounting to £8,133,000; and war stock and bonds 2¾ per cent., repayable in 1910; exchequer bonds 3 per cent., repayable in 1903 and 1905; and six, nine and twelve months' treasury bills; a total of £67,000,000, the interest on which is excluded from the fixed annual charge. Other capital liabilities, such as the Russian Dutch loan annuity, the Uganda Railway, naval, military works, etc., Pacific Cable act, friendly societies, postoffice savings banks, and similar other items, made up a total of £32,613,757. The cost of the national debt amounted to £21,685,531, an increase over the previous year of £1,850,043. This huge debt has been caused almost entirely by foreign wars.

Army.—The army budget for 1902-03 demanded £69,310,000, a decrease of £17,605,000 from the estimates of the previous year. (See paragraph Parliament, Spring Session).

Navy.—The naval estimates for 1902-03 aggregated £31,255,500, an increase over the previous year of £380,000. Of this total £28,962,600 was for the effective services. The first lord of the admiralty is the practical head of the navy and is held responsible for its general efficiency. Under him there are four naval lords, a civil parliamentary lord and a financial or parliamentary secretary. The senior naval lord, usually an experienced admiral of high rank, is to the navy what the commander-in-chief is to the army. The amount of money set apart for new construction was £9,058,000, of which £700,000 was ordered to be expended in beginning new vessels. The new programme included 2 battleships, 2 armored cruisers, 2 third class cruisers, 4 scouts, 9 torpedo boat destroyers, 4 torpedo boats and 4 submarines. The battleships are of the *King Edward VII.* type. Included in the plan of reconstruction was the placing of all the 6-inch guns of the *Royal Sovereign* into casemates. The 4.7-inch guns of the *Barfleur* and *Centurion* were also to be replaced by 6-inch guns in casemates. Four 6-inch guns each were added to the armament of the *Powerful* and *Terrible*, and in 13 ships of the *Arrogant* and *Talbot* classes 6-inch guns were substituted for the 4.7-inch guns. The national interest in the effectiveness of the navy was undiminished during the year. On March 14 Lord Charles Beresford, addressing a special meeting of the London Chamber of Commerce, made an important address on the "Lack of Administrative Efficiency in Our Organization for Defense and Its Remedies." The total collapse of the war department during the Boer war had caused a general feeling of uneasiness throughout the country with regard to the naval service, so that great importance was attached to Lord Beresford's criticisms. The government was questioned in both houses of Parliament, and in the House of Commons especially the subject was very thoroughly discussed. Early in the year a meeting was held at Mansion House under the presidency of the lord mayor to consider the re-establishment of the

Royal Naval Volunteers. The following resolution was adopted: "That this meeting of representative citizens of London cordially welcomes the proposal provisionally made by the admiralty memorandum of August 26, 1901, for the formation of a volunteer reserve for His Majesty's navy, and desires to express the belief that such a movement would be heartily supported by the city and boroughs of the metropolis." An important appointment, dated February 1, 1902, was that of Mr. Watts as successor to Sir William White, the assistant controller of the navy and director of naval construction. According to the new naval regulations, it is ordered that the gunnery lieutenant of each ship is in future to take charge of all the hydraulic machinery which is in any way connected with the gun mountings; similarly, the torpedo lieutenant is to be responsible for the dynamos, motors, torpedoes, etc., of the torpedo armament. One of the most radical changes for many decades is the new scheme for the entry, training and supply of naval officers issued by the first lord of the admiralty on Christmas day, 1902. A résumé of its more important features is as follows: All officers, whether executive, engineer, or marine, enter the service as naval cadets under precisely the same conditions and are trained under the same system until they have passed for the rank of sub-lieutenant between the ages of nineteen and twenty. At about the age of twenty they are distributed between the three branches of the service—executive, engineer and marine. Cadets between the ages of twelve and thirteen, after their entrance examination, are sent to the Royal Naval College, where they spend four years, after which they become midshipmen and enter on their sea instruction. A special feature of their training will be instruction in mechanics and marine engineering. All grades of the engineer branch are to receive executive designations of rank; engineer students become engineer cadets; assistant engineers, engineer sub-lieutenants; engineers, chief engineers; and staff engineers, engineer lieutenants; fleet engineers, engineer commanders; inspectors of machinery, engineer captains; chief inspectors, engineer rear admirals; and there is also a likelihood that the engineer-in-chief will rank as a vice-admiral. Marine officers are to share in the duties of the ship, but most radical of all is the decision that a certain proportion of warrant officers will be granted commissions.

Agriculture.—The Board of Agriculture for Great Britain has not issued any statistics for 1902 other than those relating to the area under crops. No information regarding holdings and allotments has been published since 1897. There has been an increasing interest in the agricultural question, and the Allotments and Small Holdings Association, which was founded in 1885 to assist agricultural laborers to obtain small allotments of land, has been correspondingly active on their behalf. Many agriculturists have come to the conclusion that the successful and profitable working of their land is impossible under the system of free trade. The tenant farmers as a whole find it difficult to meet their obligations under present conditions, and argue that import tariffs, while it might give them a market, would only result in increasing the rent of their holding to the exclusive advantage of the landlord; hence the interest in the association above mentioned. The total acreage of all the crops and grasses for 1902, exclusive of mountain and heath land in Great Britain, amounted to 32,387,965, as against 32,317,445 in the previous year. The official statement classifies the crops as follows: Wheat, 1,726,473; barley, 1,909,383; oats, 3,057,203; rye, 68,379; beans, 243,101; peas, 179,751; potatoes, 573,880; turnips and swedes, 1,608,661; mangels, 441,414; cabbages, 69,039; other crops are kohlrabi, rape, vetches, lucerne, and 104,788 acres of other green crops. The larger part of the fruit cultivation is in the southern counties of England, and in 1902 absorbed 236,856 acres. The agricultural condition of the country is far from encouraging, but the national need for a food supply in time of war is compelling the interest of both houses of Parliament and the country at large. It is one of the most difficult problems of English politics, in that it touches on so many other points of national policy. A favorite formula of the Imperial Federationist party is, "the colonists to supply us with food and the mother country to supply them with manufactures." This would mean the inevitable ruin of English agriculture.

Mineral Production.—The latest statistics regarding the output of coal in Great Britain and Ireland are obtained from a Blue Book issued in October, 1902, the statistics given being for 1901. The full total was 219,046,945 tons, a decrease of 6,134,355 tons as compared with 1900. The average price of coal in 1900 was 9s. 4.29d. per ton at the mines, a decrease of nearly 18d. from the price obtained in 1900. It is calculated that the coal strike in the United States increased the output of 1902 over 1901, but not to any very appreciable extent. During 1901 Great Britain imported 10,000 tons of coal and exported 58,405,000; an excess over imports of 58,395,000. At the beginning of the year it was feared that foreign competition would flood the whole market with coal, a dread which was further increased by the coal tax imposed by the chancellor of the exchequer. In iron and steel the market was particularly strong and active throughout the year, owing

to the strong demand of the United States and Canada; an increase in the output of pig-iron of about 200,000 tons distinguished the first six months of the year, a record which was exceeded in the second half.

Ship Building.—The exact figures for ship building are not, at this time, obtainable, but orders for new ships at the various yards have been comparatively few, in many respects smaller than for several preceding years. According to Lloyds' *Register* the total number of steamships and sailing vessels of 100 tons register and upwards was 29,628, with an estimated tonnage of 32,437,763. The number of sailing vessels of all countries is 12,472, with a net tonnage of 6,577,776 tons. Of this number 11,041 ships were British, their tonnage total being 15,546,897.

Business and Commerce.—So far as business was concerned the year 1902 opened in gloom. The war was still in progress and gave no indication of any immediate ending. It was expected that the government would be compelled to make another large loan, which would have the effect of making money scarce and dear. All Europe seemed to be arrayed against Great Britain. In India the famine continued, in Australia the long drought entailed heavy financial losses upon New South Wales and Queensland; the Chinese markets were practically dead, as the result of the Boxer episode; and, in brief, the whole world was purchasing less from the British manufacturers than had been the case for many years. Early in the year, however, as the tide of war turned more strongly against the Boers, the feeling in the business world became more optimistic, with the result that early there developed an active market in consols and South African gold shares. The former rose almost to 98, and a few of the South African investments sold their shares higher than at any time since the boom of 1895. The moment peace was assured selling on a very large scale set in and was maintained for the following half year. Consols dropped almost to 92, and the fall in South African investments ranged anywhere from 20 to 50 per cent. Money was not very plentiful, but could be obtained on fairly reasonable terms by all who were in good credit. On the continent affairs were scarcely less favorable, and consequently reacted upon the London money market. Conditions in France caused the private hoarding of money and the withdrawal of deposits from the banks, with the result that the French banks withdrew a large proportion of the money they had been employing in London, while on the French exchange consols, gold shares, and other securities were sold in the most reckless fashion. The scare spread to Germany with like result. Besides this, there was prevalent a very exaggerated fear that what was known as the balloon of American prosperity was soon to be punctured, with the result that a crisis would surely follow, and consequently many of the foreign banks refused to renew American bills and sold American securities freely. Such a condition of affairs in Europe of necessity reacted disastrously on the English exchanges, and caused the heavy fall in securities that continued until the end of November. With the advent of December the business atmosphere brightened, and the year 1902 ended more satisfactorily than was expected. The cessation of hostilities rescued the government from the necessity of borrowing on the scale that had obtained in 1901. In that year new consols had been issued for sixty million sterling, while in 1902 only thirty-two million sterling were added. It had been the custom of the government previous to 1901, when the taxes were not paid promptly enough for its requirements, to borrow money from the Bank of England on what came to be known as the deficiency bills, but during the war the system reacted most disastrously upon the London money market and consequently was abandoned. Under the British taxation system the greater proportion of the tax money is collected in the last three months of the financial year, with the result that the government is short of money during the first three-quarters of the year and is compelled to borrow money from the Bank of England. Realizing the defects of this system, the chancellor of the exchequer obtained authority from Parliament to apply in the open market for money instead of relying entirely upon the Bank of England. The scheme was fairly successful except that it prevented money from becoming plentiful in the open market. The rates of interest and discount, however, were lower in 1902 than in the year previous, and considerably lower than it had been in 1900. In explanation of this a leading London financial authority stated that it was owing to the fact that government borrowings were less in 1902 than they were the year before; also that in 1900 conditions in Germany sent the money in that country very high, which reflected on the London market; in the third place, there had not been large shipments of gold from London to the United States. The Bank of England rates of discount never went below 3 or over 4 per cent. during the entire year, and in January the rate was reduced from 4 to 3½ per cent., and in February to 3 per cent. In October it was raised again to 4 per cent., where it remained to the end of the year. The several important banking events of 1902 were as follows: The International Banking Company, of New York, established a London branch for the purpose of obtaining business with the Philippines; the




FOUR BRITISH STATESMEN—(Upper left) Arthur J. Balfour. (Upper right) Lord Lansdowne. (Lower left) Lord Milner. (Lower right) Lord Curzon

National Bank of the South African Republic was made the National Bank of South Africa; the Agricultural Bank of Egypt was organized with a capital of two and a half million sterling; the Bank of China and Japan went into liquidation, and the larger banks of London bought up and otherwise absorbed a large number of small banks in London and the provinces. The tendency to concentrate is as conspicuous in the banking world as in the manufacturing world. Public opinion seems to have declared the doom of private banks. These latter hold no public meetings and publish no detailed accounts, so that their business is unknown, and consequently helps the joint-stock banks.

The silver market was very unsettled throughout 1902. A heavy fall occurred in the middle of March, largely owing to the difficulties with China, who was compelled to pay the indemnity demanded by the Powers in gold, so that she had to sell silver, with the result that the 26d. per ounce that obtained in January had gone below 22d. in August. Besides this, Spain gave up the coinage of silver, and the Siamese government adopted the gold standard. The total imports of silver into the United Kingdom during the year were £9,764,296, or £1,737,382 less than in 1901; the total exports were £1,333,719 less than in 1901. The total imports of gold, which remained very steady during the year, were £21,629,049, or £913,421 more than 1901. Great Britain received, however, about five millions sterling from South Africa, a considerable advance on the year before. Exports of gold amounted to £15,409,088, 10.3 per cent. better than in the preceding year. The revenue, railway, clearing house, and board of trade returns indicated a fairly satisfactory condition of trade. The revenue for the nine months ending with December practically coincided with the estimates of the chancellor of the exchequer.

The seventeen railway companies of the United Kingdom improved their gross receipts over a million and a quarter, or 2.8 per cent. more than in 1901, the receipts amounting to £47,699,000. The clearings of the London Clearing House were £467,573,000 in excess of 1901, and amounted to a total of £10,028,742,000. This is particularly remarkable in that 1901 had been reckoned the record year. The increase was attributed to the augmentation of debt consequent upon the South African war, but the balance of the increase was in trade proper.

According to the board of trade returns for December, the total imports were £528,860,284, or £6,870,086 in excess of the year previous. The same authority gives the exports of British and Irish produce as £283,539,980, which is £3,517,604, or 1.3 per cent. the better of the preceding year. The improvement, however, was more in the home trade than in the foreign. In fact, it has been observed that during the past twelve or fifteen years the home trade has steadily increased, notwithstanding adverse influences or circumstances, in which it differed considerably from the foreign trade that naturally varied according to the politics of the world and the economic conditions of the purchasing countries. The coal strikes in the United States and France helped the foreign trade, but on the other hand the famine in India, drought in Australia, trouble in China, and war in South Africa were unfavorable. The wool sales during 1902, according to the returns of the London-Colonial wool sales, amounted to 1,048,906 bales, of which 461,000 bales went to the continent of Europe and the United States, the remainder being taken by the home trade. The price for merino wool was especially high, the drought in New South Wales indicating the scarcity of merino for some years to come. The uncertainty regarding the American cotton crop caused a general hesitation in the cotton market during the early months of 1902, and the spinning branch of the cotton industry throughout England became so depressed that the factories ran on reduced time in the hope of altering the situation. Towards the end of the year conditions improved, although in no part of the spinning or weaving trades was there any real prosperity.

Imports and exports have been as follows:

	1900	1901	1902
EXPORTS.			
Home products	£291,191,996	£280,022,376	£283,539,980
Reshipment of imports	63,181,758	67,841,892	65,810,684
Total exports	£354,373,754	£347,864,268	£349,350,664
IMPORTS.			
Total merchandise	£523,075,163	£521,990,198	£528,860,284
Excess of imports over exports	£168,701,409	£174,125,930	£179,509,620

The following table shows the imports to and exports from Great Britain by countries in 1900 and 1901.

Country.	Imports.		Exports.	
	1900	1901	1900	1901
Russia	£21,984,000	£21,904,000	£16,380,000	£14,211,000
Scandinavia (including Denmark)	29,579,000	29,792,000	15,130,000	13,521,000
Germany	31,182,000	32,207,000	38,542,000	34,221,000
Netherlands	31,381,000	32,872,000	14,931,000	13,744,000
Belgium	23,503,000	24,666,000	14,846,000	12,625,000
France	53,619,000	51,213,000	25,877,000	23,701,000
United States	138,789,000	141,015,000	37,343,000	37,651,000
South and Central America	27,412,000	26,019,000	15,596,000	15,097,000
Other foreign countries	56,096,000	56,726,000	24,394,000	21,629,000
British India	27,388,000	27,392,000	49,330,000	48,346,000
Straits Settlements and Ceylon	12,499,000	10,589,000	30,967,000	35,746,000
South Africa	3,973,000	5,132,000	5,124,000	4,877,000
Australia	23,801,000	24,218,000	29,445,000	29,582,000
New Zealand	11,616,000	10,595,000	13,992,000	18,939,000
Canada	21,764,000	19,855,000	9,059,000	9,250,000
Other possessions	8,490,000	7,793,000	13,437,000	14,724,000
Total	£523,075,000	£521,990,000	£354,374,000	£347,864,000

The exports in 1901, as compared with 1892 are shown as follows:

	1892	1901		1892	1901
Food-stuffs	£10,436,000	£14,885,000	Chemicals, etc.	£8,585,000	£8,942,000
Raw materials	19,320,000	33,378,000	Other manufactures	29,615,000	38,069,000
Yarns and textile fabrics	100,056,000	103,471,000	Miscellaneous	1,701,000	3,908,000
Metals and metal products	46,931,000	66,429,000			
Apparel, etc.	10,433,000	10,940,000		£227,077,000	£260,022,000

The exports of textiles have been as follows:

Year's Exports.	1900	1901	1902
QUANTITIES.			
Cotton yarn ... pounds	158,272,900	169,658,000	167,483,100
Piece goods ... yards	5,031,727,000	5,364,600,200	5,330,724,700
Jute yarn ... pounds	38,708,100	43,014,300	46,990,300
Piece goods ... yards	173,976,800	215,459,300	195,739,300
Linen yarn ... pounds	16,347,100	12,971,100	14,215,600
Piece goods ... yards	154,708,200	150,215,300	162,962,400
Woolen yarn ... pounds	57,148,200	48,498,400	52,722,100
Woolen tissues ... yards	50,502,600	44,879,100	47,197,100
Worsted tissues ... "	102,173,500	93,979,100	102,602,700
VALUES.			
Cotton yarn	£7,741,129	£7,977,032	£7,412,938
Piece goods	52,384,839	56,501,684	55,190,963
Jute yarn	486,492	514,608	529,949
Piece goods	1,874,867	2,143,780	1,909,637
Linen yarn	934,201	824,681	842,200
Piece goods	3,851,615	3,737,074	4,050,056
Woolen yarn	4,461,896	3,487,686	3,530,939
Woolen tissues	5,906,279	5,199,074	5,503,029
Worsted tissues	6,467,750	5,845,996	6,267,900

The following figures show the quantity of iron exports:

Year.	Pig Iron.	Rails.	Other Descriptions.	Totals.
	Tons.	*Tons.*	*Tons.*	*Tons.*
1897	1,201,104	782,045	1,702,957	3,686,106
1898	1,042,853	609,403	1,592,094	3,244,350
1899	1,380,342	590,667	1,746,171	3,717,180
1900	1,427,525	463,731	1,649,433	3,540,689
1901	839,182	572,724	1,485,813	2,897,719
1902	1,102,835	717,021	1,759,248	3,579,104

HISTORY.

Parliament (Spring Session).—The third session of the twenty-seventh Parliament of the United Kingdom of Great Britain and Ireland and the second of Edward VII., was opened by His Majesty in person accompanied by the queen, on January 16, 1902. The speech from the throne announced that the relations of Great Britain with other Powers continued to be of a friendly character. With regard to the war in South Africa the king announced that the course of operations had been favorable to British arms, that their scale had been largely reduced, and that industries were being resumed in the South African colonies. With reference to the relations of

THE CORONATION OF KING EDWARD

Royal Coach carrying the newly crowned Sovereigns up Whitehall to the Palace.

Their Majesties drawn by Queen Victoria's famous "Creams"

Great Britain with other Powers, the king recited the circumstances under which the International Conference at Brussels on sugar bounties had been called at the instance of the king of the Belgians, and expressed the hope that its decision might lead to the abandonment of a system by which the sugar producing colonies and the home manufactures had been unfairly weighted in the prosecution of sugar manufacturing. He announced the conclusion of treaties with the United States relative to the construction of the isthmian canal and with Brazil for the arbitration of disputed territory between Brazil and British Guiana. With reference to the settlement of the latter dispute he announced that the king of Italy had consented to act as arbitrator. With regard to India, he expressed regret that on account of the scarcity of rain in that country famine and distress had prevailed there, and that the continuation of relief measures for a while longer would be necessary. He informed Parliament that measures would be laid before it for the coordination and improvement of primary and secondary education; for improving the water supply of London; for facilitating the sale and purchase of land in Ireland; for improving the law of valuation; for restricting the sale of intoxicating liquors; for amending the patent law; and for reforming the law of lunacy. At the adjournment in August only one of these measures had been finally disposed of, although some progress had been made on the education bill. Much of the time of this session was taken up with a discussion of the proposed new rules of procedure, in the House of Commons, the general purpose of which was to facilitate the dispatch of legislative business. In regard to the maintenance of order, the new rules attached more serious consequences than heretofore to the suspension of a member, requiring an apology before the offender might resume his seat. The speaker was authorized to adjourn the House at his own discretion in case of disorder. The proposed rules also permitted the introduction of bills without the formal consent of the House, changed the hours of meeting, and limited the period for questioning members of the government as well as the power to debate, or challenge divisions on matters of routine. Against the government's proposition it was urged that the contemplated arrangements tended to suppress debate, encouraged resort to obstruction, and curtailed the privileges of private members in the presentation of bills. From the constitutional standpoint, objection was raised that an enforcement of the new penalties to the degree of excluding a member from an entire session of Parliament would inflict undue punishment upon a constituency, and violate its right to choose its own representatives. However, the ministry procured a sanction of most of the rules.

Another measure of importance which occupied a considerable portion of the time of the Parliament was the army reorganization bill. This scheme provided for the creation of a reserve of militia, yeomanry, and volunteers, and an improvement of the medical service. It also provided for the relief of officers from certain burdens and the allowance of a more substantial salary for new recruits and veterans with a view to encouraging enlistment and long service. The scheme, furthermore, provided for more artillery and mounted troops, better trained officers, more barracks in every army corps district, more training grounds, special training of the militia and volunteers, etc. The total number of new troops under this scheme is intended to be 125,500 at a cost of £2,000,000. The total home force is estimated as follows: Regulars, 155,000; reserves, 70,000; militia, 150,000; yeomanry, 35,000; volunteers, 250,000. Very important changes were also effected in the organization of the war office. An inspector-general of artillery was provided for to be followed by an inspector of yeomanry. General officers are to have larger financial powers; a war office board is to be created; a war office council and a permanent executive committee of the war office are also provided for, while the duties of the army board have been changed in several particulars. A measure which called forth much discussion was the budget presented by the chancellor of the exchequer on April 14, which estimated the expenditure for the ensuing year at £174,609,000, involving a deficit of about £45,000,000. It was proposed to meet this by the imposition of duties on cereals, an increase in the income tax, a suspension of the sinking fund, and the doubling of the stamp tax on checks and dividend warrants. A loan of £30,000,000 was also proposed. The proposal for an increased tax on bank checks was finally withdrawn by the chancellor of the exchequer. The *revised* estimates of the budget as announced on June 10, placed the total expenditures for the year at £176,400,000. Other measures which came in for a considerable share of discussion were bills to lessen habitual drunkenness by stricter regulation of licenses; to provide old-age pensions for the deserving poor; and to protect copyrights on musical publications.

Parliament (Autumn Session).—Parliament reassembled on October 16, 1902, in continuation of the session which began in January and lasted until August. The most important acts of the session were the education bill for England and Wales, the London water bill, the Osborne estate bill, the metropolitan water act, the militia and yeomanry act, the patents act, the supreme court of judicature act, the Indian budget, and the Uganda railway act. The prorogation took place on December 18.

The speech from the throne gave a survey of the condition of the empire and recited the chief events of note which had occurred during the year. The king congratulated Parliament on the conclusion of the war in South Africa with an honorable peace; announced that the new colonies of the Transvaal and Orange River had been incorporated in the empire, and recited a list of new treaties concluded with foreign Powers. See paragraph Foreign Relations.

The Education Bill.—By far the most important measure of Parliament was the education bill, which had been before that body for more than a year. It had excited great interest throughout the kingdom and was strongly opposed both in and out of Parliament by large numbers of Non-conformists and Liberals, chiefly on the ground that it provided for taxation of the rate payers for the support of denominational instruction and vested the control of the schools in bodies, a majority of whose members were to be chosen by the church authorities and a minority by the county or borough councils. The bill made little progress at first in the House of Commons and was carried over as unfinished business from the summer session to the autumn session, when, by means of the closure, its passage was expedited. Finally, on December 3, 1902, it passed the third reading in the House of Commons by a vote of 240 to 123. The bill was immediately sent to the House of Lords, where, in the presence of only three peers it was read for the first time. It passed the third reading December 15, and received the royal assent the same day. The bill as finally passed, abolishes all school boards outside of London, and makes the county and borough councils the local education authority. In place of the old elective school boards, school committees are to be appointed by the councils. In the case of the so-called voluntary or church schools, the actual control is to be in the hands of a body of managers with power to appoint teachers, the majority of managers to be appointed by the denominations. Denominational schools are to be maintained partly by a grant from the imperial exchequer, but mainly at the expense of the rate payers provided thirty pupils attend, and provided the school buildings are kept in repair by voluntary subscription. Teachers for denominational schools are to be selected with reference to religious rather than educational qualifications, thus excluding the teaching profession so far as the majority of primary schools are concerned. It was objected by the opponents of the bill that the committee managing the school would be controlled by the religious body interested, which selects two-thirds of the body of managers. Mr. Bryce, who led the opposition to the bill in the House of Commons, thus sums up the case against it: "The bill proposed to hand over half the schools of the country in perpetuity to one denomination alone; to exclude from the post of teacher in one-half of the schools of the country all persons who would not declare themselves members of the Church of England; to perpetuate the distinction of two classes of schools differently managed, but standing side by side; and to destroy the bodies which in the towns had worked successfully for education, and, indeed, had done nearly all that had been done for it during the last twenty-five years. These were the four things which the bill proposed to do. The first was against constitutional principles; the second, against justice; the third, against economy; the fourth, against common sense. And all were against education." Threats of "passive resistance" by refusal to pay rates and otherwise obstructing the enforcement of the law have been numerous and general among the Non-conformists.

Other Measures of Parliament.—Other important measures of Parliament were the local government (Ireland) act, which amends the existing law in several particulars, especially with regard to contributions to county infirmaries, remuneration of medical practitioners and superannuation of officers; the metropolis water act, which provides for the establishment of a water board charged with acquiring and managing the undertakings of the metropolitan water companies of London; the militia and yeomanry act, which provides for the creation of reserve divisions of the militia and yeomanry; the Osborne estate act, which provides for the transfer of the Osborne House estate on Isle of Wight, from King Edward, whose property it became under the will of Queen Victoria, to the nation, and its assignment to become part of the hereditary revenues of the crown, Parliament agreeing to preserve and keep open to the public such part of the house as was personally occupied by the late queen, the rest to be used as a convalescent home for military and naval officers; the patents act, which amends the law with reference to applications for patents and compulsory licenses and other matters connected therewith; the Uganda Railway act, which provides that the maximum amount authorized to be raised under previous acts shall be £5,530,000 instead of £4,930,000, and any sums so raised may, if necessary, be applied under the direction of the treasury for the purpose of paying the principal of and interest on any temporary loan raised for the purpose of the Uganda Railway before the passage of the act; and a liquor license law, which is intended to restrict the sale of intoxicating liquors and which attempts to lessen habitual drunkenness

by requiring the registration of habitual drunkards and the prohibition of the sale of liquor to such persons under heavy penalties.

Coronation of the King and Queen.—The original date set for the coronation was June 26, 1902, but two days before this date announcement was made that the king was seriously ill. The coronation ceremonies and festivities, for which immense preparation had been made, were indefinitely postponed, and consternation fell on all the kingdom and empire. On July 15, His Majesty was able to leave London for a cruise to Cowes, and on July 19 it was announced that the coronation ceremony would take place on Saturday, August 9. Early in the morning of that day, the whole route from Buckingham Palace to Westminster Abbey, where the ceremony took place, was lined with spectators, while all balconies, windows, and places of vantage along the route were fully occupied. Soon after ten o'clock, the first of the three processions composed of carriages conveying members of the royal family and the royal visitors emerged from the palace. This was followed by the Prince of Wales's procession, starting from Marlborough House. Half an hour later, the king and queen left the palace in their state coach, which took its place in the procession, which now moved toward the abbey, preceded and followed by cavalry escort. Within the abbey there had assembled several thousand persons—peers and peeresses in their robes of rank; members of the House of Commons in court dress or uniform; distinguished foreign visitors, members of the diplomatic body, cabinet ministers, privy councillors, judges, civil servants, municipal representatives, and other officials. Soon after ten o'clock a service for the dedication of the regalia took place in Henry VII.'s chapel after which the procession of bishops and clergy moved down the nave to await the arrival of the king. At twelve o'clock the procession entered the western doors of the abbey. The service began with the recognition, the archbishop of Canterbury presenting His Majesty to the assemblage as their undoubted king, at which there was a response of "God save King Edward." The litany having been sung, the communion service followed, including a special prayer for the king with thanksgiving for his restoration to health. After this the archbishop of Canterbury administered the coronation oath. Then followed the ceremonies of anointing, presenting with the spurs and sword, oblation of the sword, investment with the orb, cross and ring, and presentation of the sceptres, after which was the solemn ceremony of crowning. The presentation of the Bible next took place; the benediction was pronounced, and the king was formally enthroned by the archbishops and bishops on King Edward's chair. Homage was then rendered, which ended the crowning of the king. The ceremony of anointing and crowning Queen Alexandra, performed by the archbishop of York, followed, and Her Majesty took her place on her throne on the dais. Their majesties next descended from their thrones, removed their crowns, and partook of the holy communion on the steps of the altar, which ceremony concluded the coronation.

The king and queen, wearing their crowns, left the abbey for the return journey to Buckingham Palace about 2 P.M. In all parts of the kingdom coronation celebrations were held on Saturday, also in the colonies and India and by the British populations in foreign countries. Special services of thanksgiving for the king's recovery and commemorating the coronation were held on Sunday in churches and cathedrals.

Conference of Colonial Premiers.—One of the most notable incidents connected with the coronation of Edward VII. was the conference of the premiers of the British self-governing colonies, which was held at London from June 30 to August 11, and brought about chiefly through the efforts of the colonial secretary, Mr. Chamberlain, who presided over the meetings. Among the questions discussed by the premiers were: The political relations of Great Britain with the colonies; preferential trade and imperial defense; the commercial relations of the empire; the relations of Australia and New Zealand with the other islands of the Pacific; and the general adoption of the metric system of weights and measures throughout the empire. Mr. Chamberlain in his opening speech said the purpose of the meeting was to draw closer the bonds which unite the colonies and the mother country, and to establish and confirm that imperial unity upon which the security of the empire depends. He said he would not press the question of closer political relations, as that must be left to the colonies themselves, but added: "Gentlemen, we do want your aid, we do require your assistance in the administration of this vast empire, which is yours as well as ours. We have borne the burden for many years. We think that our children should assist us to support it, and whenever you make the request to us, be very sure that we shall hasten gladly to call you to our councils." As to imperial defense, Mr. Chamberlain submitted a paper showing that there was an unfair distribution of the burdens of the empire and that the extraordinary share borne by the United Kingdom could not always be carried. In regard to commercial relations he said the government desired to establish the principle of free trade within the empire, but up to that time no proposal so far-reaching had come to them from any of the colonies. On the question of preferential tariff for British goods, he said,

drawing a lesson from Canadian experience: "While we most gratefully accept from you any preference which you may be willing voluntarily to accord us, we cannot bargain with you for it; we cannot pay for it unless you go much further and allow us to enter your home markets on terms of greater equality." The conference held altogether ten sessions and passed a number of resolutions on a variety of subjects, which resolutions are to be submitted to the legislatures of the various colonies concerned. It recommended the holding of similar conferences every four years. It fixed the contributions of the colonies to the imperial navy as follows: Australia, £200,000 per year; New Zealand, £40,000; Cape Colony, £50,000; Natal, £35,000; Newfoundland, £4800. Most of these amounts represent increased contributions, as in the case of the quota of Cape Colony, whose grant was raised from £30,000 to £50,000. Various other minor arrangements relative to naval defense were agreed upon. The conference reached no definite agreement on the subject of military defense. A scheme was considered for allotting a certain number of the local forces in the colonies for the purpose of imperial defense in case of an emergency, while some of the colonies agreed to the proposal for imperial reserves, others, such as Canada and Australia, contented themselves with promising to keep their local forces in a state of efficiency, relying on the willingness of the people to assist the imperial government in case of an emergency, as they did in the case of the South African war. With regard to the trade of the empire, the conference agreed upon a policy of establishing in the colonies preferential tariffs on British products; that is to say, between each colony and the mother country the extent of the preferential treatment to vary according to the circumstances of each colony. A resolution was adopted calling for a united contribution (aggregating £80,000) from all the colonies to the memorial to Queen Victoria, each colony to be represented by some distinctive feature. Resolutions were also adopted favoring ship subsidies, the introduction of the metric system of weights and measures throughout the empire, a system of mutual protection for patents, government ownership of ocean cables and cheap postage on newspapers and periodicals between the different parts of the empire.

Political Affairs.—The chief political event during the summer of 1902 was the voluntary retirement on July 13 of Lord Salisbury from the premiership and the immediate selection of his nephew, Mr. Arthur J. Balfour, as his successor. The event occurred shortly after the conclusion of peace with the Boers, and was entirely unexpected. It was well known, however, that on account of Lord Salisbury's advanced age (seventy-three years) the cares of state were beginning to press heavily upon him. The death of the queen, whom he had served as prime minister since 1885 with the exception of two short intervals of three and one-half years, and the conclusion of the war in South Africa, gave him an opportunity to retire without sacrificing the interests of the government. His tenure of the premiership exceeded that of any other prime minister in the history of England with one exception, and during most of the time he united the onerous duties of the foreign office to the grave responsibilities of the premiership. Mr. Balfour upon being tendered the premiership consulted Mr. Chamberlain before accepting the offer, after which he agreed to undertake the task of conducting the government. At a meeting of Unionist members the new prime minister referred to the irreparable loss which the party had sustained in the resignation of Lord Salisbury, and while he could not hope to fill the gap which Lord Salisbury had left, he said he had accepted the task because he believed that he would have the confidence of those with whom he worked. As for future policy he had no pronouncement to make. Changes there might be, but that was not the occasion on which to discuss them. The policy of the Unionists he was sure would remain what it had always been. Several important changes in the cabinet were effected by Mr. Balfour. He himself took the post of first lord of the treasury. Mr. C. T. Ritchie was appointed chancellor of the exchequer in the place of Sir Michael Hicks-Beach. Mr. Akers-Douglas, who had been first commissioner of public works, succeeded Mr. Ritchie as secretary of state for home affairs. The Earl of Dudley was appointed lord lieutenant of Ireland without a seat in the cabinet, Mr. George Wyndham remaining chief secretary for Ireland with a seat in the cabinet. The Marquis of Londonderry became president of the board of education, being succeeded in the postmaster-generalship by Austen Chamberlain, son of the colonial secretary. The other appointments are: William H. Fisher, financial secretary of the treasury; Sir A. F. Acland-Hood, chief government whip; Earl Percy, under-secretary for India; T. H. Cochrane, under-secretary of the home office; Lord Hardwicke, under-secretary of the war office; Sir William Anson, secretary of the board of education; Andrew B. Law, secretary of the board of trade, and William Henry Forster, commissioner of the treasury.

In a number of by-elections held subsequent to the accession of Mr. Balfour, the government was defeated chiefly on the education issue, the Irish policy, and the Boer war. In all these constituencies there had formerly been safe Conservative or Unionist majorities. The municipal elections in England and Wales occurred early

HON. JOSEPH CHAMBERLAIN AND COLONIAL PREMIERS—(Front row, beginning at left) Sir Robert Bond, Premier of Newfoundland. Rt. Hon. R. J. Seddon, Premier of New Zealand. Sir Wilfred Laurier, Premier of Canada. Rt. Hon. Joseph Chamberlain, Secy. of State for the Colonies. Sir Edmund Barton, Premier and Minister of Foreign Affairs in the First Australian Federal Cabinet. Lieut. Col. Sir Albert Henry Hime, Premier of Natal. T. Fuller, Representing Sir Gordon Sprigg, Premier of Cape Colony.

in November. In thirty-seven cases no contests took place. In the political contests the Liberals gained eighty-four seats and the Conservatives fifty-four, the educational question being the chief issue in many cases.

Foreign Relations.—Under this head the most important event in 1902 was the conclusion of peace in South Africa. Negotiations for this purpose began in January with the proffered mediation of the government of the Netherlands, which the British government declined, saying that it could not accept the intervention of any foreign power in the war. The government decided that peace negotiations must take place not in Europe but in South Africa. After various preliminary agreements a conference of sixty Boer delegates elected by the commandoes, assembled at Vereeniging, May 15, from which a special commission consisting of Generals Botha, De Wet, Delarey, Smuts, and Herzog was deputed to negotiate with Lord Milner and Lord Kitchener. The commissioners asked for self government under British supervision, stating that they were prepared to surrender part of their territory and their independence as regarded foreign relations. This request Lords Milner and Kitchener refused to consider, and eventually articles of peace were agreed upon, and these were accepted by the conference of Vereeniging May 30. The terms of peace were announced in the House of Commons on June 2 by Mr. Balfour. See TRANSVAAL.

Other matters of note in the foreign affairs of Great Britain were the conclusion of a treaty with Japan for the maintenance of the integrity of China and Corea and for the preservation of British and Japanese interests therein (see JAPAN); the adhesion of the British government to the Brussels sugar convention for putting an end to the inconveniences resulting from the grant of excessive bounties on the production of sugar; the conclusion of a commercial treaty with China providing for valuable trading privileges in the Far East and perfecting arrangements for the withdrawal of British forces from Shanghai; and the conclusion of a treaty with the Emperor of Abyssinia for delimiting the frontier between that country and the Soudan. A long-standing difference between Chile and the Argentine Republic with regard to their frontiers was settled by the arbitration of King Edward. In eastern Africa British operations were undertaken to check the depredations committed by the Mad Mullah Abdullah against the tribes under the protection of Great Britain. In this undertaking Great Britain was aided by the cooperation of the government of Italy (see SOMALILAND). The relations of England with Venezuela have been strained on account of alleged unjustifiable and arbitrary acts against British subjects and property during the course of the last two years. The government finally acting in concert with that of Germany, demanded redress, which was conceded (see VENEZUELA). An amicable settlement of the British-French West African dispute concerning the "Waima affair," was effected by arbitration through the decision of the Belgian minister of state in December. An alliance between Great Britain and Portugal with regard to South African affairs was recently announced, while the understanding between Great Britain and Italy with regard to affairs in the Mediterranean was superseded by the new Franco-Italian agreement. See ITALY (paragraph Foreign Affairs).

An incident in the relations between Great Britain and Germany was an outburst of ill-feeling and resentment among the Germans against Great Britain on account of some remarks made by Mr. Chamberlain in justification of British methods in South Africa and his allusion to Germany's treatment of France in 1870-71. These remarks were made the occasion for angry denunciations of the British government by the German press, and the matter was taken up in the Reichstag where Chancellor von Bülow characterized the British government rather severely and with some show of resentment.

Mosely Commission.—This was a commission of British labor leaders organized by Alfred Mosely, which visited America in November, 1902, to study American industries and the condition of American workmen. Mr. Mosely invited representatives from the largest trade unions to join the commission. In most cases, the unions sent their general secretary to represent them. The inquiries of the commission were facilitated by the assistance of prominent men, trade unions in various cities, the Civic Federation, and the American Federation of Labor. One of the first results of the tour is likely to be the organization in England of a body similar in object to the Civic Federation of America. The commission thoroughly investigated the work of this body, and as a result of their investigations, passed unanimously on November 30 a resolution declaring that such an organization would be a benefit to both employer and employed. It would not interfere with the bodies that already exist for mediation and conciliation, but would make it a duty to get information of the first sign of a dispute, and to bring the parties together at round-table conferences, and to investigate each other's conditions and points of view with the hope of eliminating prejudice and bringing vexed questions to a satisfactory outcome. The superiority of the American industrial system seems to have been established

beyond doubt. It was Mr. Mosely's opinion that the American worked harder and was better trained and educated than the Briton. He thinks the British workingman suffers from a lack of what he calls the crowning glory of American civilization—a highly developed system of public education. As the American manufacturer works his men harder and pays them more liberally, he is more ready to install new or improved machinery at the first suggestion of need or advantage. Mr. Mosely also contrasted the eagerness of the American man with capital to invest it in productive enterprise with the unwillingness of the wealthy Briton to enter "trade," even to grant for commercial uses natural advantages which might lie on the edge of his vast estate. The commission returned to England December 21, 1902, and its report was in preparation at the end of the year.

Irish Affairs.—During 1902 the situation in Ireland continued to grow more serious. Early in the year a series of disturbances arose out of the agitation of the United Irish League and took the form of intimidation, boycotting, refusal to pay rent, and general lawlessness. At length, in April, the government authorized coercive measures in certain districts which involved a change of venue at the option of the crown, summary jurisdiction, special juries, and the suppression of obnoxious newspapers and branches of the league as dangerous associations. In September, on account of the increase of the disturbances, these measures were extended to five additional counties including the city of Dublin. This action of the government was the subject of loud protest upon the part of the Irish, who denied that the situation demanded such high-handed action. The attempt to arrest certain Irish members of Parliament who were conspicuous in the disturbances, was resisted and in several cases led to riots. At one time durng the year more than thirty Nationalists, including eight members of Parliament, were either undergoing punishment or awaiting sentence for conspiracy in connection with tenant troubles or for sedition. Among these was John O'Donnell, member of Parliament for the county of Mayo, who was sentenced to three months' imprisonment at hard labor for intimidation and inciting to boycotting, and to an additional three months in default of bail for good behavior. His arrest caused considerable excitement throughout the island and provoked loud threats among members of the United Irish League. In September Edmund Burke, M.P., and Michael Reddy, M.P., were sentenced to five months' imprisonment at hard labor for intimidation. About the same time P. A. McHugh, M.P., editor of the *Sligo Champion*, was sentenced to two months' imprisonment at hard labor, having been convicted of conspiracy and intimidation. Upon the reopening of Parliament, October 16, the Irish members created a disturbance, one member going almost to the length of assaulting the prime minister, Mr. Balfour. The premier had announced that the remainder of the session would be devoted entirely to government business, which he explained would consist mainly of the discussion of the education and London water bills, while the Indian budget, the Uganda Railway, sugar bounties, the supply vote, and the Transvaal would also require attention. Thereupon Mr. Bryce, acting as leader of the Liberals, made a mild protest which was followed by an outbreak from the Irish members. Impassioned speeches of denunciation were made by Irish members, outbursts of applause alternated with hisses, and one of the members, O'Donnell, refused to obey the speaker and shook his fist vigorously in the face of Mr. Balfour, whom he denounced for neglecting the interests of Ireland in the programme which had been mapped out. O'Donnell was suspended by a vote of 341 to 51. The Irish members continued to demand a day for the discussion of Irish affairs and especially the Crimes act, which had been applied to a large part of the country. With the aid of a number of Liberal members the Irish demands finally received recognition and an understanding was reached by which it was agreed that a day should be set upon for the discussion of the Crimes act. In the course of the discussion, Sir Henry Campbell-Bannerman denounced the policy of the government and declared that after ten years of resolute government in Ireland the island had a Crimes act for its magna charta and a Sergeant Sheridan as the embodiment of law and order. O'Brien, an Irish leader, argued that the harsh administration of the act was endangering the peace of Ireland, and insisted that Dublin was much more peaceable than Birmingham, declared that the Irish were prepared to make generous terms with the landlords, and accused the chief secretary for Ireland, Mr. Wyndham, of employing England's power to enable the territorial magnates to play their own game. A comprehensive measure for the settlement of the Irish land question was debated at length in Parliament. As originally introduced, it provided for the sale of the interests of landlords in land occupied by tenants to the tenants occupying them. The Irish members insisted that the measure be modified so as to make the sale compulsory and that the congested-districts board be recognized and given compulsory powers of acquiring land. The government refused to say that voluntary purchase had worked well so far as it had been tried. The failure to pass the measure created widespread discontent throughout the island and was the cause

of much agitation. Nevertheless, at the close of the year the legislative programme had more promise for the betterment of the Irish tenantry.

GREECE, a constitutional monarchy in Southeastern Europe, lying between the Ionian and Ægean seas. The capital is Athens.

Area and Population.—The area is 25,014 square miles, and the population at the last official census (1896) was 2,433,806. Athens had at that time 111,486 inhabitants, Piræus 42,169, and Patras 37,958. It was reported in 1901-02 that the emigration of young men of the agricultural class had assumed such proportions as to cause fears for its serious consequences upon the country. A great part of the population are adherents of the Greek Orthodox Church, the declared religion of the State, but complete liberty of worship is guaranteed all other sects. There is an organized system of primary schools in which attendance is nominally compulsory, trade, technical, and agricultural schools, and a university at Athens with 2853 students.

Government.—The executive authority is vested in a king, assisted by a responsible ministry of seven members. The legislative body, the *Boulé*, consists of a single chamber of 207 members, elected by manhood suffrage. The reigning sovereign, George I., son of King Christian IX. of Denmark, was elected king by the Greek national assembly in 1863.

Army and Navy.—All able-bodied men over twenty-one years old are liable for military service. The regular army consists (1902) of 22,000 officers and men, and on a war footing can be recruited to 82,000. The navy consists of five armor-clads, seven torpedo boats, and a number of unprotected vessels, manned by 3782 officers and men.

Finance.—Since the war with Turkey (1897) the finances of Greece have been in the hands of an international commission at Athens, consisting of representatives of the six mediating Powers. The monetary unit is the gold drachma, worth 19.3 cents; the paper drachma has a fluctuating value of about two-thirds of a gold drachma. The revenue and expenditure in currency value (1900) were 112,206,849 drachmai and 114,088,468 drachmai, respectively, and the estimates in the budget of 1902 were 123,949,931 and 121,885,707, respectively. The revenue is derived chiefly from direct and indirect imports, stamp taxes, and monopolies. The largest items of expense are for service of the public debt (estimated at 33,532,060 drachmai for 1902), and for the departments of war and the interior. The public debt (December 31, 1901) amounted to 695,220,500 drachmai gold and 169,157,573 drachmai currency, and is being steadily reduced. Gold and silver coin has practically disappeared from circulation and has been replaced by a forced note circulation of about 150,000,000 drachmai.

Industries, Commerce, etc.—Agriculture is the chief industry, although in a backward state, and manufactures have made but little progress. The principal crop is currants, the exports of which for the year ending July, 1902, was about 150,000,000 pounds. Other products of importance are wheat, barley, oil, fruits, magnesium, emery, marble, and sponges. The imports increased in value from 131,385,000 drachmai in 1900 to 138,765,000 drachmai in 1901, and the exports decreased from 102,739,000 to 93,781,000 in the same period. The values in drachmai of the chief articles of export in 1901 were: Currants, 41,191,000 (52,890,450 in 1900); minerals, 19,166; olive oil, 4,620,000; and tobacco, 4,114,000. The trade is largely with Russia, Great Britain, Austria-Hungary, Germany, Turkey, and France. The American consul at Athens says that probably one-fourth to one-third of the imports from Germany are really American goods imported by German merchants and re-shipped to Greece as German articles. The merchant marine consisted (1901) of 1064 vessels of 299,407 tons.

There are 696 miles of railway open for traffic. In March, 1902, a company was chartered for the construction of the "Piræus Railway" from Athens to Demerly, which, it is intended, shall ultimately connect Greece with the general European system. The corporation has a capital stock of 10,000,000 drachmai, and to further the construction a loan of 35,000,000 francs will be floated. The completion of the road, which was projected several years ago, is looked forward to as an event of the greatest importance in the economic development of the country.

HISTORY.

Revival of Brigandage.—During the year 1902 there was an alarming revival of brigandage in the country, especially in the western Morea and Thessaly. In many cases the outlaws were said to be in collusion with citizens in the large towns, and the peasants through fear or sympathy furnish them with provisions and give them warning of the approach of the law officers or provide hiding places for them. An extensive system of extorting money from merchants and wealthy inhabitants by threats has been practised with success. The officials seem to

be unable or unwillng to cope with the growing evil. This state of internal disorder is given as one reason for the large increase of emigration to the United States noted during the year, which the government is desirous of checking because it is draining whole districts of the able-bodied, energetic males of the rising generation.

Foreign Relations.—In the summer of 1902 it was reported that Greek and Turkish diplomats, after several years of untiring efforts, had succeeded in re-establishing fairly cordial relations between the two governments. This condition of affairs was not considered, however, as any real guarantee of a lasting peace, as the attitude of Greece was doubtless prompted more by fear of the nationalistic and expansive designs of Bulgaria than by any newly discovered love for the Turk. A new difficulty, moreover, was presented in the decision of the Porte to prohibit foreign fishing in Turkish waters. Prince Mavrocordato, the Greek minister at Constantinople, was instructed to take action in the matter, but serious difficulties arose in the course of the negotiations, and the prince suddenly left Constantinople for Athens, where it was reported that he was not likely to return. The decision of the Turkish government to suppress the sponge fishing off the coast of Tripoli, although undoubtedly aimed against the Italians, threatened with ruin many thousands of Greeks on the islands of Ægina, Spetsai, and Psara, and for their protection a Greek warship was dispatched to the Tripolitan coast. Toward the close of the year it was announced that diplomatic relations between Greece and Persia were about to be resumed after an interval of non-intercourse extending over 2393 years—that is, since B.C. 491, when Darius sent heralds to Athens demanding submission to the Persians. Of course, this mission of the heralds differed somewhat from modern diplomatic intercourse. An event not without significance and one that gave great pleasure to the pro-Russian party in the country, was the marriage on August 29, 1902, at St. Petersburg, of Prince Nicholas, the third son of King George, and the Grand Duchess Hélène, daughter of the Grand Duke Vladimir, and thus a cousin of the Czar.

Political Affairs.—The ministry of M. Zaïmis, which was formed in November, 1901, in order to allay the popular agitation following the riots arising from the differences in connection with the translation of the Gospels into modern Greek, restored order with but little opposition, and the decision reached in October, 1902, to prosecute one student, four gendarmes, and four civilians who were concerned in the disturbances was apparently accepted by all parties as a satisfactory ending to a troublesome affair. Aside from this, however, the Zaïmist ministry was not popular and was able to accomplish little more, in the face of rather desultory opposition, than had its predecessor, the ministry of M. Theotokis. The Theotokists, who had voluntarily given up their power, not because there was an adverse parliamentary majority against them but merely because it seemed advisable to place the settlement of the Bible difficulties in new hands, were little inclined to lend their support to any measures likely to give the Zaïmists a long lease of power. The elections of November 30, 1902, following the dissolution of the chamber, resulted in the choice of 82 Delyannists, 75 Theotokists, and 46 Zaïmists. As the ministerial party had thus a smaller number of supporters than either of the other two groups, M. Zaïmis handed in the resignation of himself and his colleagues on December 1. On December 5, the king called upon M. Delyanni, the veteran statesman, to form a ministry. M. Delyanni, now over eighty years old, has been a power in Greece for a quarter of a century, but he had not been in office since the disastrous ending of the Græco-Turkish war. With the strong parliamentary following that the elections gave him, however, it was thought that he could command a working majority, and he therefore accepted the task. That the opposition, particularly the Theotokists, had determined on a radical policy to break up the new ministry, was shown on the reopening of the chamber on December 23, 1902. The Theotokists had retained possession of the keys to the legislative hall, and determined on a *coup*, which consisted of nothing less than to take possession of the hall in the early morning before the arrival of the Delyannists and elect the senior member of their own party president of the body. In this they counted on the support of some members of the Zaïmist group, which had owed its lease of power during 1901-02 to the voluntary giving way of the Theotokists. The Delyannists, however, were informed of the plot, and at a midnight ministerial meeting it was determined to forestall the action of the opposition by forcing the doors. This was done, and when the Theotokists arrived, at 7 o'clock, they found M. Tsarlambas, a Delyannist, installed as president, and the ministerial deputies all in their seats. When the Metropolitan began the customary opening prayer, he was interrupted by a Theotokist deputy, who arose and loudly denounced the action of the ministry. In the uproar that followed blows were exchanged, and an inkstand that was hurled across the chamber fell into the holy-water font. The Theotokists finally withdrew, under protest, order was restored, and the king entered and read the speech from the throne. See ARCHÆOLOGY.

GREEK CHURCH. The constituency of the Greek Church, which comprises the Orthodox Greek Church and the Russian Orthodox Church, is estimated at 100,000,000. In the United States the Russian branch is represented by 40 ministers, 31 churches, and 40,000 communicants; the Orthodox Greek Church by 8 ministers and 9 churches with a membership of 21,230, a noteworthy gain over 1901. The dedication of a Russian Orthodox church in New York City in 1902 was significant of the growth of that church in the East, its stronghold having been, hitherto, Alaska and the Pacific coast of North America.

GREENLAND, a Danish island, the largest in the world after Australia, has an area variously estimated at from about 500,000 to over 800,000 square miles. The colonized area, which extends along the west coast from about 60° to about 72° north latitude, is stated at 46,740 square miles, and its population (1895) at 10,639. The commerce is a government monopoly. The exports include seal, cod, and whale-oil, seal and fox skins, and eiderdown. In 1900 imports from and exports to Denmark were valued at 831,000 kroner and 340,000 kroner, respectively (the krone is worth 26.8 cents). See ARCTIC EXPLORATION.

GRENADA. See WINDWARD ISLANDS.

GRÉVILLE, HENRI, the pseudonym of Alice Marie Celeste Durand (*q.v.*).

GRIFFIN, SIMON GOODELL, a major-general in the Union army during the Civil War, died January 14, 1902, at Keene, N. H. He was born August 9, 1824, in Nelson, N. H., and after a boyhood spent on a farm became a teacher, was admitted to the bar in 1860, and at the beginning of the Civil War was commissioned captain in the Second New Hampshire Volunteers. In 1862 he was promoted lieutenant-colonel in the Sixth New Hampshire, which he commanded in the second battle of Bull Run, at Antietam, and at Fredericksburg. He commanded a brigade at Vicksburg, and in 1864 was commissioned a brigadier-general of volunteers. For gallantry in the assault on "Fort Hell" (April 2, 1865), he was brevetted major-general of volunteers. At the close of the war he declined a major's commission in the regular army and returned to Keene. He was a member of the State legislature for five terms, during two of which he was speaker of the house.

GUADELOUPE, a French colony in the West Indies consisting of the two islands of Basse-Terre and Grande-Terre, and five small adjacent islands. The total area is 688 square miles, and the population (1901) 182,112. The capital is Basse-Terre, with 7838 inhabitants. The colony is administered by a governor and an elected council and is represented by a senator and two deputies in the French parliament. The colonial revenue and expenditure balanced in the budget of 1900 at 6,120,581 francs, and the expenditure of France on the colony, according to the budget of 1902, amounted to 1,737,289 francs. There is a colonial debt of 1,200,000 francs. The imports in 1899 were valued at 19,155,751 francs, and the exports at 18,707,558 francs, the principal articles in the latter being sugar, 39,390 tons; coffee, 1,587,000 pounds, and cacao-beans, 915,530 pounds. The chief product is sugar, in the culture of which 24,153 persons were employed.

GUAM, the largest and most southerly of the Ladrone, or Marianne, Islands, ceded by Spain to the United States by the treaty of Paris in 1898, is situated about 5000 miles west of San Francisco, and 1500 miles east of the Philippines. It has an area estimated at 150 square miles, and a population of about 10,000, of whom 6400 live in Agaña, the capital. The island is administered by a United States naval officer, under direction of the navy department. The present governor is Commander Seaton Schroeder. The chief importance of the island lies in its value as a naval base and coaling station on the direct line between the United States and the Philippines. Sugar, rice, corn, wheat, figs, indigo, coffee, cotton, and cocoanuts are produced, but very little of the island is under cultivation, although at least half of it is arable. The only product that has ever been exported to any extent is copra, but its production has been insufficient during the past two years even to supply the home demand. There are no records of the exports, but the imports of merchandise from the United States were valued in 1902 at $23,964. Extensive naval docks and storehouses are in process of erection at Apra (or Piti), the port of Agaña, by the United States government.

On September 22, 1902, a severe earthquake occurred on the island, which resulted in the destruction of a great deal of native property, and in damage to the United States naval station and insular public buildings to the extent of about $50,000. There was little or no loss of life, but the damage to native crops was so great that it seemed probable that government aid would be required during the ensuing season. The shocks, of which between 100 and 150 were recorded, recurred at intervals for a week or more.

On December 15, 1902, Senator Joseph B. Foraker, of Ohio, introduced in the Senate a bill to provide a new form of government for Guam, by which the

President is vested with authority to select a person or persons who shall exercise all jurisdiction, civil, military, and judicial, necessary for the island's proper government. A further provision reduces the tariff on articles imported from Guam to 50 per cent. of the Dingley tariff rates. The annual report of the governor, Commander Schroeder, dated July 16, was received at Washington, December 26, and shows the condition of the island to be rather unsatisfactory. The receipts for the fiscal year 1901-02 were about $66,000 and the expenditures $57,000, leaving a balance on hand of $8000—which is, however, a decrease of over $13,000 from the surplus for the preceding year. All work on public improvements had necessarily been abandoned, owing to the failure of Congress to make appropriations. The governor asked for an appropriation of $40,000 for public improvements, a request which the subsequent losses from the earthquakes in September probably makes much more pressing.

GUATEMALA, the most northern and western republic of Central America. The capital is Guatemala City.

Area and Population.—Guatemala has an estimated area of 48,300 square miles and an estimated population of over 1,574,000. About 60 per cent. of the inhabitants are Indians and most of the remainder mestizos. The reported number of public schools in 1900 was 1030.

Government.—The executive authority is vested in a president, who is assisted by a cabinet of six members. In 1902 the president was Señor Manuel Estrada Cabrera, who as vice-president succeeded to the executive office in March, 1898, and in September of the same year was elected for the six-year term ending March 15, 1905. The legislative power rests with an assembly elected by popular vote and with a council whose members are chosen in part by the assembly and in part by the president. The regular army comprises about 7000 officers and men, and the effective army nearly 57,000.

Finance.—The monetary unit is the silver peso, worth 42.8 cents on October 1, 1901, and 38.4 cents on October 1, 1902. The silver peso, however, is no longer in ordinary circulation. The money in use is the fluctuating paper peso and fractional nickel coins. In 1902 the value of the paper peso, which is used in statements of customs and internal revenues, was about 15 cents in United States money. Revenue accrues chiefly from customs and taxes on alcoholic liquors and tobacco; the largest items of expenditure are for service of the debt, public instruction, and war. The total revenue and expenditure for the fiscal year 1900 are reported at 11,964,168 pesos and 11,870,667 pesos, respectively; for the fiscal year 1902 the estimated expenditure was 13,438,110 pesos; for the fiscal year 1903, revenue 14,555,000 pesos and expenditure 15,547,247 pesos. The foreign debt in 1902 was reported as about $8,226,000; the internal debt amounts to over 28,000,000 pesos (silver).

Production and Commerce.—The leading products are coffee (largely controlled by German capital), sugar, corn, bananas, tobacco, and cacao. Imports and exports, valued in gold pesos worth approximately one dollar, are reported at 4,117,659 and 8,370,555, respectively, for 1899, and 3,127,102 and 7,393,204, respectively, for 1900. The coffee export in the latter year amounted to nearly 73,000,000 pounds, valued at 6,485,936 pesos gold. Other exports were rubber, hides, sugar, and cabinet woods. The principal imports are cotton goods, flour and provisions, alcoholic liquors, and iron and steel goods. The United States is first in the import trade, and Germany in the export.

Railways.—In the spring of 1902 there were reported 342 miles of railway in operation, of which 159 miles comprised Pacific lines. The Northern Railway, projected from Puerto Barrios to Guatemala City, 193 miles distant, had reached Sanarte. This left a gap of only 34 miles in a line of railway connecting the Caribbean coast with the Pacific at San José. The southern section of this line, the Central Railway, running from San José to Guatemala City, is 74 miles in length. The total distance accordingly between the coasts is 267 miles. Other railways are projected and under construction.

History.—Exceedingly disastrous earthquakes, beginning on April 18, 1902, and continuing with varied degrees of violence until April 24, appear to have been a calamity second only to the volcanic disasters in the West Indies during the following month. The extraordinary horror of the latter disasters, however, and the absence of cable communications with Guatemala led to less discussion of the earthquakes in the public prints. The shocks destroyed eight cities, including Quezaltenango, San Marcos, Mazatenango, Solola, Santa Lucia, and San Felipe, while thousands of people were killed and thousands left destitute. Indeed much damage was done through a large part of the republic, and the machinery on many of the chief coffee-growing plantations was seriously injured. Before the earthquake of April 18, indications pointed to a very large coffee crop, but so great was the damage done that hardly more than half a crop could be expected. Widespread commercial depression ensued, due in part to the earthquakes and in part to

scarcity of labor. Many laborers went to Mexico and Salvador, where wages are paid in silver instead of in a depreciated paper currency, as in Guatemala. The government took measures immediately for repairing the damage done by the earthquakes. On April 24, 1902, the congress enacted a law providing for the amelioration of conditions in the districts that had suffered from the earthquake of April 18. This law provided for an increase in the customs duties on various luxuries, exempted from taxation for a period of five years the urban properties of the injured communities, for a like period released the inhabitants of such communities from all personal service to the State, and for two years removed the import duties from the more important building materials. On May 2, 1902, when the ruins of Quezaltenango, which had been entirely destroyed, were still smoking, President Cabrera issued a decree ordering the rebuilding of the city. Work was immediately begun, and on San Marcos as well.

Later in 1902 Guatemala suffered another disaster which in the persistence of its effects, at least, was even worse than the earthquakes of April. On October 24 the volcano of Santa Maria, which is between Quezaltenango and Retalhulue, and about 50 miles from the Pacific, became active, and eruptions, accompanied by earthquake shocks, continued with more or less violence till November 9. Santa Maria, which is in the important coffee zone, is perhaps 10,000 feet high. The city of Quezaltenango lies about 7000 or 8000 feet above the sea. Coffee grows best, in Guatemala, at an elevation of from 2000 to 4000 feet; hence the departments of Quezaltenango and Tumbador were admirably adapted for its cultivation. And it was this region that suffered most from both the earthquakes and the volcano. It was in this section also that German capital was heavily invested in coffee. Little or no lava seems to have been thrown out by the volcano, but there were enormous quantities of ashes, sand, and poisonous gases. Although the Guatemalan authorities tried to minimize the reports of damage done, it seems that several towns and villages were ruined wholly or in part. It was stated that every vestige of life within a radius of thirty miles was destroyed, and that miles of plantations (chiefly coffee) in the districts of Costa Cuca, Chuva, Reforma, Palmar, Kouhutz, and Costa Granda, were buried in ashes and débris, many places to the depth of seven feet. Thousands of domestic animals were killed, and some 7000 people (mostly Indians), it was stated, were asphyxiated or buried beneath the volcanic débris. After the eruption great distress prevailed among the survivors, of whom 10,000 were said to be in danger of starvation. Bands of robbers, moreover, plundered and murdered refugees and looted abandoned plantations. It is likely that the country would have recovered fairly rapidly from the damage wrought by the April earthquakes, but that done by the volcano, since so much of the best land was covered with sterile débris, it will probably take years to repair.

An attempt in April, 1902, on the part of Germany, France, and Great Britain to collect debts due from the Guatemalan government created much discontent. The pressure brought to bear by Great Britain was responded to by a popular outbreak, so that on the 18th of the month two parties of armed British sailors were landed from the cruiser *Grafton* at San José. Settlement was then made to Great Britain, France, and Germany. This proved to be a serious drain on the treasury, necessitating an extra gold import duty of 30 per cent. This duty had a considerable part in bringing about the stagnation of business mentioned above. On November 22, 1902, the son of United States Minister Hunter shot and killed an American named Fitzgerald in Guatemala City, and then took refuge at the United States legation.

GUIANA. See British Guiana, Dutch Guiana, and French Guiana.

GYMNASTICS has become an important sphere of intercollegiate competition since the formation of the Intercollegiate Gymnastic Association in 1899. In 1902 the fourth and most successful contest was held in Philadelphia, March 21, and was won by Yale, with 16 points. The other scores were: Columbia, 15; Princeton, 10; New York University, 5; Pennsylvania, 5; Haverford, 3. The several events were won as follows: Horizontal bar, tie between G. W. Albin and R. T. Hinton, Yale; club-swinging, G. P. A. Brayden, New York University; parallel bars, tie between W. L. Benham, Columbia, and P. A. Moore, Princeton; tumbling, R. T. Hinton, Yale; side horse, J. C. Smallwood, Columbia; flying rings, P. M. Kempf, Pennsylvania. The championship of the Amateur Athletic Union was contested in New York City in April. The winners were: Horizontal bar, E. C. Brendlin; parallel bars, J. Buner, rope-climbing, E. Kumath; side horse, J. Buner; flying rings, E. Kumath; tumbling, P. R. E. Stefer; long horse, A. Jaboda; club swinging, F. Metz, Jr.

GYPSUM. See Mineral Production.

HAGUE COURT OF ARBITRATION. See Arbitration, International.

HAILSTORM PREVENTION. See Agriculture (last paragraph of section on Plant Production).

HAITI, a republic occupying the western and smaller portion of the island of the same name, the eastern portion being occupied by Santo Domingo (*q.v.*). It has an area of 10,204 square miles, and a population of 1,244,650 (1901), of whom over 90 per cent. are negroes, and most of the remainder mulattoes. The capital, Port-au-Prince, has a population of 70,000, the only other large towns being Cape Haiti, population 29,000, and Les Cayes, population, 25,000. The Roman Catholic is the predominating religion, and the language spoken a debased French dialect. The president (in 1902 Gen. Boisrond Canal), in whom is vested the executive power, is elected for a term of seven years in joint session of the legislature, which consists of a chamber of representatives, elected by popular vote, and a senate chosen by the chamber.

The revenue is derived almost entirely from customs, the export duties being payable in American gold, and the import duties in paper. In the budget estimates for 1901-02 the revenue amounted to 4,409,318 dollars paper and 2,917,435 dollars gold, and the expenditure to 4,422,816 dollars paper and 2,918,490 dollars gold. The public debt (December 31, 1901) was 23,223,466 dollars gold and 4,737,783 dollars paper. The paper money circulation amounted (1899) to 3,749,000 dollars. Agriculture is the principal industry, and coffee, cacao, logwood, honey, hides and cotton are produced. The imports in 1900 were valued at 5,750,000 dollars, and the exports at 11,200,000 dollars. Coffee is the most important export, amounting in 1900 to 72,122,781 pounds, but the development has been checked by the heavy export duty of $3.80 per 100 pounds. Two-thirds of the trade is with the United States. There are only fifteen miles of railway in operation, but additional lines are projected which will in time connect with the Santo Domingo system. It is unlikely that the construction will be undertaken, however, in the prevailing state of political unrest.

History.—The republic of Haiti was, during 1902, the scene of another one of its periodical revolutions, this time apparently rather more severe than usual. The immediate occasion of the present outbreak seems to have been the announcement made by Gen. Tiresias Sam in March, that he intended to hold the office of president after the expiration of the term for which, according to general understanding, he was elected. He justified his proposed course by an ambiguity in the constitution. General Sam, who had served as minister of war for President Hippolyte, was elected to succeed him in April, 1896. The constitutional term is seven years, and a second term is not allowed. General Sam now asserted that the two years he served to fill out the unexpired portion of Hippolyte's term do not count toward his own seven years. This astonishing interpretation increased the ill-feeling and discontent which have existed for some time. At Jacmel, a port on the southern coast, the unrest finally, toward the end of March, assumed the form of an open revolt. To quell this insurrection General Le Conte was sent to Jacmel. He took the town, but on April 5 was himself attacked and driven out of the town by a force of revolutionists under Gen. Nicholas Baptiste, who, after sacking the town, retired to the hills. The minister of war, Gen. Victor Guillaume, thereupon marched south with a second column, and on April 12 met the rebels in a battle in which 100 of the latter were killed. General Baptiste was taken prisoner and shot. The little gunboat *Crête-à-Pierrot*, which constituted the principal part of the Haitian fleet, was dispatched to Jacmel, and anchored in the harbor. At Port-au-Prince there was no actual outbreak at the time, but several officials were imprisoned on suspicion. The unrest was evident enough, however, in every part of the republic, and this President Sam realized. He had adopted the course of most Latin-American political leaders of laying up something for a rainy day. His enemies declared that he had bought securities valued at over a quarter of a million dollars in the past three years. At any rate, the life of a retired revolutionist, living on his hard-earned fortune in the comparative quiet of Paris, appealed to him as a much pleasanter existence than that of head of the turbulent negro republic that, since its establishment, has never allowed one of its presidents to serve out his seven-year term in peace. He therefore resigned office early in May, and on the 15th of the month sailed with his wife for Paris, leaving his countrymen to settle his succession in whatever way they chose. They generally choose to settle such things by force of arms in Haiti, and that was exactly what occurred in the present instance. Three days before his departure, the Haitian congress met at Port-au-Prince to choose a successor, but the disorder was so great and the quarrels of the opposing factions so bitter that it was at once seen that nothing could be expected of them. Several of Sam's former ministers and a number of prominent army officers therefore met and formed a provisional government, with Gen. Boisrond Canal, a former president, as provisional president; and Gen. Alexis Nord as minister of war. But instead of settling the difficulty, the organization of the provisional government appears rather to have precipitated trouble. General Firmin, who has for several years been a rather disturbing factor in Haitian affairs,

refused to acknowledge the legitimacy of the provisional government, declared himself the liberator of the republic, and assumed the title of president. His cause was greatly strengthened later, when Admiral Killick, a Scotch-Haitian, declared for his candidacy and placed his "fleet"—i.e., the gunboat *Crête-à-Pierrot*—at his command. General Firmin gathered an army and advanced on the capital, and Admiral Killick declared a blockade of the entire coast. The action of the latter called forth a warning from Commander McCrea, of the United States gunboat *Machias*, that he must obey the rules of international war or be considered a pirate. During July the only engagement of importance occurred when General Colin of the Canal-Nord provisional government defeated and turned back a Firminist force under General Jumeau, who were advancing on Cape Haytien. Early in September the revolution, which had been dragging along in a desultory fashion during August, was brought sharply to the public attention by a startling incident. The gunboat *Crête-à-Pierrot*, under Admiral Killick, was rendering valuable aid to the Firminist cause. On September 2, in pursuance of the plan of attempted blockade, the gunboat seized the German merchant steamship *Markomannia*, which was carrying munitions of war to the Haitian provisional government. On September 6 the German gunboat *Panther* overhauled the *Crête-à-Pierrot* in the harbor of Gonaives and demanded its surrender. Admiral Killick, realizing that defense was useless, according to the newspaper reports, personally fired one of the magazines. The *Panther* thereupon opened fire on the Haitian vessel, and completed its destruction, the brave admiral and part of his crew going down with the ship. Weakened by the loss of his "navy" and by the fall of St. Marc, which capitulated to General Nord in October, General Firmin abandoned his attempt to obtain control of the government, and embarked with a few of his followers for a place of refuge in the Bahamas. General Alexis Nord, who had been minister of war in the provisional cabinet, thereupon entered Port-au-Prince at the head of the army, congress was convened and toward the end of December he was elected president. Reports, however, suggested that the presence of an army which, for the time being, is devoted to Nord's interests, had more to do with bringing congress to a decision in his favor than any personal or political popularity of Nord himself.

HALL, Christopher Newman, an English clergyman of the Congregational church, died in London February 18, 1902. He was born at Maidstone, Kent, May 22, 1816; was educated at Highbury College and London University (A.B., 1841), was first pastor of the Albion Congregational Church at Hull from 1842 to 1854, and in the latter year became minister of the Surrey Chapel (Rowland Hill's). His congregation removed in 1876 to Christ Church, Lambeth, and he continued in the pastorate until his resignation in 1892, when he became a general evangelist. In 1866 he was chairman of the Congregational Union. During the Civil War he preached and lectured in England against secession, and upon a subsequent visit to the United States was received with many marks of esteem. He received the degree of D.D. from Edinburgh, and published the tracts: *Come to Jesus* (1846; in 1891 it was estimated that 3,000,000 copies had been circulated in about twenty languages); *Follow Jesus* (of which 246,000 copies in the English edition had been circulated by 1885); the volumes *The Land of the Forum and the Vatican* (1852; new ed., 1859), a description of travel, and *The Lord's Prayer: A Practical Meditation* (1883; 2d ed., 1889); and other writings.

HAMOUD BIN MAHOMED BIN SAÏD, Sultan of Zanzibar, died in Zanzibar, July 18, 1902. He was born in 1853, and upon the death of his cousin, Hamed bin Thwain, in August, 1896, succeeded to the throne. Another cousin, Saïd Khalid, had proclaimed himself ruler, but, although not recognized by other powers, had to be expelled by force, in the form of interposition by Great Britain, which maintains a protectorate over Zanzibar. On account of his peaceful temperament and perfect amenability to British counsel, Hamoud's reign was undisturbed by political or other troubles.

HAMPTON, Wade, a Confederate soldier and ex-Senator from South Carolina, died April 11, 1902, at Columbia, S. C., where he was born March 12, 1818. He came from an old fighting stock prominent in the history of the State, his grandfather having fought in the Revolution and held a major-general's commission in the War of 1812, in which his father also served with distinction. He graduated at the University of South Carolina, studied law—without the intention of practising it, however—and devoted himself to politics. He inherited extensive plantations in South Carolina and Mississippi, and, although one of the largest slave-holders in the South, opposed the reopening of the slave trade while a member of the State senate, and, as a conservative Democrat, advocated many policies that were locally unpopular. When South Carolina seceded he joined the Confederate army as a private. Soon afterwards he raised a command comprising infantry, cavalry, and artillery, which was known as "Hampton's Legion." He was wounded at the first

battle of Bull Run and at Seven Pines, and in 1863 was appointed a major-general of cavalry. Twenty-one out of the twenty-three officers in his command were killed at Gettysburg, and, although wounded himself, he refused to leave the field during the battle. He commanded the Confederate forces at Trevillian Station, where he gave Sheridan a severe check, and in twenty-three days he captured over 3000 men and much material of war. He was commissioned lieutenant-general, and after the death of Gen. Jeb Stuart, became commander-in-chief of the cavalry forces of the Army of Northern Virginia. In 1876 he was elected governor of South Carolina, was re-elected in 1878, and was United States senator from 1879 to 1892. He met with an accident in 1878, while hunting, that necessitated the amputation of a leg. During the crisis through which the South passed after the Civil War, he wielded great influence and displayed statesmanlike qualities in organizing public sentiment for the acceptance and improvement of the new conditions.

HARDY, Arthur Sherburne, an American author and diplomat, was on September 26, 1902, transferred from his office as envoy extraordinary and minister plenipotentiary to Switzerland to a similar duty in Spain. He was born in Andover, Mass., August 13, 1847, and after graduating in 1869 from the United States Military Academy served for a year in the Third United States Artillery regiment. From 1871 to 1873 he taught civil engineering at Iowa College, and then spent a year in study at the École des Ponts et Chaussées. On his return he became professor of civil engineering at Dartmouth College, and held that post until 1878, when he was appointed professor of mathematics. He edited the *Cosmopolitan Magazine* from 1893 to 1895; served as resident minister and consul-general for the United States at Teheran, Persia, from 1897 to 1899; was for the next two years minister to Greece, Roumania, and Servia, and on January 11, 1901, was made envoy extraordinary and minister plenipotentiary to Switzerland. His mathematical works, *Elements of Quaternions* (1881), *New Methods in Topographical Surveying* (1884), *Elements of Analytic Geometry* (1888), and *Elements of Calculus* (1890), have found considerable favor in academic circles, but the best known of his publications are the novels, *But Yet a Woman* (1883), *The Wind of Destiny* (1886), *Passé Rose* (1889), and two poems, *Francesca of Rimini* (1878), and *Songs of Two* (1900).

HARTE, (Francis) Bret, an American author, famed for his pictures of the California of '49, died at Camberley, England, May 5, 1902. He was born in Albany, N. Y., August 25, 1839; and, after a common-school training, went to California by way of Panama in 1856, and began work in the gold-fields at Sonora, seat of Tuolomne County. Having made but "grub wages" as a digger, he became a Wells-Fargo express messenger, and carried mail and gold-dust from the camp. Then for a time he was the schoolmaster of Tuttletown, a few miles to the northward of Sonora, from which office he wandered about the State, to learn typesetting and finally to enter at San Francisco the composing-room of the weekly *Golden Era*, then the best-known paper west of the Mississippi. He wrote considerably for the *Era*, in which were begun his *Condensed Novels*, and for various other periodicals, and in 1864 became editor of *The Californian*, a literary weekly to which he contributed its first article, and on which he "brilliantly co-operated to its early extinction." It was during his editorship of this publication that there appeared in it "The Jumping Frog of Calaveras," the earliest work of Mark Twain to attract general attention. In 1864 also he was appointed secretary of the San Francisco branch of the United States mint. Upon the establishment of the *Overland Monthly* in 1868 he assumed its editorial chair. Both the *Overland* and he shortly became famous through his prose fiction, such as *The Luck of Roaring Camp*—done in a few days to supply the magazine with the distinctively Californian interest theretofore lacking, and his verse, such as *Plain Language from Truthful James* ("The Heathen Chinee"), the currency and success of which he is said greatly to have deplored. In 1871 he removed to the East, where for several years he resided, augmenting and securing his reputation by his active literary work. He was United States consul from 1878 to 1880 at Krefeld, Germany, and from 1880 to 1885 at Glasgow. He then settled in London, where he continued until his death; publishing, however, almost yearly volumes, mainly collections of short stories, and articles on American topics.

It was the fortune of Bret Harte to have reached his high level of appreciation early, and to have maintained it continuously; to have been for well-nigh half a century a decided factor in letters. By tacit consent he was official historian of the "Argonauts." His work is characterized by the union of an almost fastidious precision of workmanship with dramatic sweep, and the interfusing of pathos and humor. He had, too, the defects of his qualities. His scope was restricted: he tried the backgrounds of old England, New England, Germany, but with inferior success; and he had not—as *Gabriel Conroy* (1876) shows—the power of sustained imagination necessary to the longer forms of fiction. The *Condensed Novels* (1867; second series, 1902), parodies of well-known authors, were a *tour de force* of exceptional

cleverness in their sort. It has been said, and with much truth, that in his exaggerations and grotesqueries there is something of Dickens; but the result is obtained with an economy of expression quite unknown to the latter. In fact, it is useless to liken Harte to others. He was unique, a discoverer—not merely of the spirit of '49, not only of the American West, but of the rim of civilization. The best of Harte is to be found in his short stories and dialect poems. Of more than two-score volumes may be mentioned *The Luck of Roaring Camp* (1870), *Two Men of Sandy Bar* (1876), *Flip and Found at Blazing Star* (1882), *Snowbound at Eagle's* (1886), *A Millionaire of Rough and Ready* (1887), *Tales of Trail and Town* (1898), and *Under the Redwoods* (1901). Several incomplete collected editions of his works have been made by his authorized publishers.

HARTLEY, Marcellus, an American manufacturer and financier, died in New York City, January 8, 1902. He was born in New York City September 23, 1828, and at an early age entered the employ of Francis Tomes and Son, gun importers and manufacturers. In 1854 he established the firm of Schuyler, Hartley and Graham, which after the retirement of Mr. Schuyler in 1876 and the death of Mr. Graham in 1899, became the Marcellus Hartley Company. During the Civil War Mr. Hartley was commissioned a brigadier-general by Secretary of War Stanton, and was sent to Europe as a government agent to prevent supplies of arms from reaching the Confederate army, by purchasing all the guns in foreign markets. He was an active figure in New York financial circles, was president of the Bridgeport Gun Implement Company and the Remington Arms Company, and a director of many banks and other corporations. He was interested in many philanthropic enterprises and contributed largely to the support of the "Hartley House," founded by the New York Association for Improving the Condition of the Poor, and named for his father.

HARVARD UNIVERSITY, Cambridge, Mass., founded 1636. President, Charles W. Eliot. During 1902 the actions of the faculties and the public discussions and annual report of the president brought a clear decision on two most important points of university policy. These relate to the question now most under debate in university and college circles: one is the length of the college course, the other, connected with it, is the admission to graduate schools. On the first point it has been decided by faculties and overseers that a candidate must have passed in studies amounting to 16 courses together with such work in English as may be prescribed for him, making a total of 17 or 17½ courses as the case may be. He must have attained a grade above D in at least two-thirds of all the work done by him in the university. It is thus possible for a student who enters the freshman class without serious deficiency to complete the requisite number of courses in four, three and a half, or three years. Practically the same policy was recommended by the faculty in 1889, though with considerable opposition, and was not sanctioned by the overseers. Since then the number of required courses has been reduced from 18 to 16, and the student completing the required number of courses in less than four years need not attain higher grades than were required of the candidate who took four years to complete the course. The regulation that a student thus abbreviating the time spent for the A. B. degree should wait until the expiration of the full four years before receiving it has also been removed. As much work and as high attainments are demanded as in the four-years' course. President Eliot states that "Harvard University has no sympathy with any effort to lower the standards of the degree of Bachelor of Arts, or to institute for it an inferior degree. It proposes to uphold the standard of that degree by all appropriate legislation within its own walls and by the effect of its admission requirement on the secondary schools." In regard to the other question, the university has reiterated its position that the baccalaureate degree shall be required for admission into all professional schools, as is now done except in the case of dentistry. This is in radical opposition to the announced policy of most universities where the preliminary degree is not required, or where there is a distinct effort to shorten the undergraduate course. Harvard recognizes, however, that the age of graduation, especially from the professional schools, is too high, but desires to improve this situation by saving time in secondary and elementary education. The faculty has expressed its opinion that 18 should be the proper age for entrance to the freshman class. President Eliot demonstrates that the graduation age is too high and that it has serious results for society by showing that of the 881 members of the six classes from 1872 to 1877, only 72 per cent. were married, and that the 634 men had now only 1262 surviving children; and that on the assumption that half of these children were male that the future classes could not be recruited from graduates. Drawing a wider deduction, it appears that the more highly educated classes in society do not reproduce themselves. The law school has almost recovered from the slight decrease in the number of students following the change to a graduate basis. More than 99 per cent. of the 634 students are now graduates.

It is estimated that the medical school will lose one-third of its members through this change, which is now being made, though the entering class in 1902 numbered 83, as compared with 67 in 1901. The Lawrence Scientific School has raised its standards until in 1903 they will be identical with the School of Arts in requirements for admission, so far as the time and labor requisite for preparation are concerned. So far this has resulted in no diminution of numbers in the student body.

Additions to the physical equipment of the university have been for the most part to the medical school. The full amount required for the purchase of land and the erection of five new buildings was completed in March, 1902, by the gift of $250,000 from Mrs. Collis P. Huntington, thus securing the conditional gift of $1,000,000 from Mr. John D. Rockefeller. The total increase in the funds of the university during the scholastic year 1901-02 was almost $1,000,000. The attendance for the year was 5206, divided as follows: College, 2109; scientific school, 584; graduate school, 316; divinity school, 37; law school, 640; medical school, 445; dental school, 112; summer session, 945. The registration for the full term 1902 had risen to 5468. The teaching staff numbers 534.

HAUSER, Walther, a former president of the Swiss republic, died in Berne, Switzerland, October 22, 1902. He was born in Wädensweil in 1837, and after holding several minor offices in the civil and military service was elected in 1868 to the council of his canton. In the following year he became a member of the national council of the Swiss confederation, where he served until 1875, and in 1881 was made a member of the executive council of the canton of Zurich, of which in 1883 and 1887 he was president. He acted for a time as minister of war in the federal council, and in 1892 and 1900 was president of the confederation.

HAWAII, or SANDWICH ISLANDS, a group of small islands in the Pacific Ocean, about 2100 miles west-southwest of San Francisco, Cal. The islands were acquired by the United States, mainly for their strategic importance, under a Congressional act of July 7, 1898, and were organized as the "Territory of Hawaii," by a further act of April 30, 1900. The capital is Honolulu, on the island of Oahu.

Area and Population.—The group includes 8 inhabited islands, with an approximate area of 6449 square miles; the other islands are small and unimportant. The islands are largely composed of barren mountains, and are inhabitable only on "the narrow strips of land extending from the bases of the mountains to the sea." The islands of Hawaii, Mani, Oahu, and Kauai, comprise over 90 per cent. of the territorial area, and have more than 98 per cent. of the total population. This population, as given by the completed census returns of 1900, was 154,001, as against 109,020 in 1896, and 89,990 in 1890. By race the population in 1900 was: Hawaiians, 29,799; part Hawaiians, 7,857; Caucasians, 28,819; Chinese, 25,767; Japanese, 61,111; South Sea Islanders, 415; negroes, 233.

Finance.—The principal sources of the territorial revenue are real and personal taxes, internal revenue, inheritance taxes, land rents, and land sales. Taxes upon real and personal property are limited to 1 per cent. of the assessed valuation, and there is an income tax of 2 per cent. By the Congressional act annexing Hawaii it was provided that a portion of the territorial debt, including postal savings deposits, but not to exceed $4,000,000 in all, should be assumed by the United States. An appropriation to carry out this act was made March 3, 1901, and the following report was made by the secretary of the Treasury in his annual report for 1902: Total amount assumed, $3,999,970.31, of which $3,235,400 were bonds, and $764,570.31 postal deposits. Amount paid: bonds, $3,223,813; deposits, $759,437.20, leaving unpaid bonds to the amount of $11,587, and unpaid deposits amounting to $5,133.11. Outside of the amount assumed by the United States, the Hawaiian government is responsible for a bonded indebtedness of $939,970.31. The receipts for the fiscal year ending June 30, 1902, were $2,473,172.81 and the expenditures $2,262,036.48. For the year previous the receipts were $2,140,297.36 and the expenditures $2,925,703.53. The largest items of receipts in 1902 were: Tax bureau, $1,658,107.09; internal revenue, licenses, and stamps, $229,856.24; harbor master, Honolulu, $91,650.71; public works office, $128,687.75; and land revenue, $103,886.69. The largest items of expenditure were: Judiciary, $108,077.25; public works department, $776,174.72; attorney-general, $309,672.62; public instruction, $376,496.26; and board of health, $273,809.96.

The assessed valuation of property in Hawaii increased during the period 1892-1901 from $33,234,299 to $121,172,928, making the per capita wealth about $2000 for every man, woman, and child. Since 1901, however, assessed valuations have undoubtedly decreased, on account of the decline in the price of sugar.

Public Lands.—There is an increased demand for small holdings and the work of the commission of public lands promises to increase steadily if funds are available. Statistics of the public land transactions for the year ending June 30, 1902, show 97 sales of 6,599.9 acres amounting to $38,880.74 and the entrance of 33 home-

steads of 136.29 acres. The receipts of the land office during the year ending June 30, 1902, were from rents and interest $103,886.69 and from sales $13,036.49, making a total of $116,923.18. A total of about 8000 acres, averaging 10 to 50 acres to a lot, were surveyed during the year, and 113 land patents were issued for 5,711.26 acres for a consideration of $69,037.79. The indications at the end of the year 1902 promised a great increase in the number of land patents to be issued for 1903.

Agriculture and Industries.—The production of sugar is the leading industry of the islands. According to official statement the acreage devoted to cane in 1901 was 78,618 acres, yielding 359,133 tons of raw sugar, as against 66,773 acres, yielding 289,544 tons in 1900. The estimates of Willet and Gray, which always range considerably below the official figures, put the crop for the season 1901-02 at 317,509 tons, and for 1902-03 at 315,000 tons. The average yield per acre for 1901 was about 8.44 tons of sugar. The average cost of production of sugar per ton was $41.13 and the average cost of cultivation per acre was $265.01. The cultivation of sisal hemp was introduced into Hawaii several years ago through the agency of the Territorial Bureau of Agriculture and Forestry. A plantation of several hundred acres is located on the island of Oahu, another was started in 1902 on Molokai, and a third is about to be started on Kauai. The castor-oil bean grows wild, and of recent years has been cultivated, yielding as high as 275 gallons of oil per acre, worth in San Francisco from $220 to $260. The growing of pineapples increased during 1902. The one cannery of the islands put up 6200 cases.

Commerce.—Speaking broadly, the commerce of Hawaii consists of the shipment of sugar to the United States and of the importation from the United States of miscellaneous articles and manufactured products for domestic use and the development of industry. As shown by the census of 1900, sugar represents 77 per cent. of the value of all industries in Hawaii, but so far as commerce is concerned this percentage is very much greater, since other so-called "manufacturing" interests are largely "neighborhood" industries, supplying local wants. Thus of exports from Hawaii amounting to $24,793,735 for the fiscal year ending June 30, 1902, all but $873,622 represented exports of sugar. The total exports for the year diminished $3,260,695.43 from 1901, owing solely, except as to $86,885.02, to a decrease in the market value of sugar. The extent of this decrease may be seen from the fact that 690,879,234 pounds of sugar were shipped in 1901, and 720,553,357 in 1902, an increase of 29,674,123. The only other items of exports which showed a considerable falling off were coffee, amounting to $311,897.27 in 1901, and $126,644 in 1902, and wool, amounting to $110,184.94 in 1901, and to only $38,681 in 1902. Of the total exports for the year, $54,365 was domestic (Hawaiian) merchandise shipped to foreign countries; $24,700,557 was domestic merchandise shipped to the United States; $9182 was foreign merchandise for foreign countries, and $29,631 foreign merchandise for the United States. In other words, of a total of $24,793,735, only $38,813 was foreign merchandise, and of this same total only $63,547 was sent elsewhere than to the United States. Imports to Hawaii from foreign countries amounted to $3,036,583, of which $934,585 came from British colonies, $909,112 from Japan, $432,498 from Germany, $271,173 from Chile, $259,311 from Great Britain, and $198,657 from Hong Kong.

Railroads.—There are four railroads in Hawaii, having about 150 miles of trackage. The Oahu Railway and Land Company, the most important transportation company on the island, during the year ending June 30, 1902, carried 437,645 passengers and 388,534 tons of freight. During the period 1901-02 the company has made extensive improvements on its harbor terminal, constructing 4000 feet of wharfage equipped with two elevators of 10,000 tons capacity each, and provided with electric conveyors capable of delivering 250 tons of sugar per hour. The largest ocean steamers can load and unload at these wharves, as the water has a depth of 30 feet. The street railways of Honolulu are famed for their modern equipment and efficient service—better than in many American cities. The Honolulu Rapid Transit Company began operations August 31, 1901, with a trackage of 4.4 miles and constructed and put into operation 7.31 additional miles within a year. Since it began operations it has carried 3,255,233 passengers, earning $156,357.40 and expending $90,904.53, leaving a net income of $65,452.87.

Education.—Public education in Hawaii is conducted according to the free, graded, public school system with English as the sole basis and medium of instruction. Attendance in the schools is compulsory for children between six and fifteen years of age. The schools include graded schools, night schools, industrial schools, a normal school, and a high school. The total number of students in both public and private schools in the school year 1902 was 17,518, showing an increase in the decade of 7358, or 72 per cent. Of the total number of students in 1902, 13,189 were in public schools, and 4329 in private schools. In the same year there were 143 public schools, 54 private schools, 229 private school teachers, or one to every 19 pupils, and 380 public school teachers, or one to every 35 pupils. The main difficulty

encountered in conducting the school system efficiently lies in the heterogeneity of the population. In the student enrollment of 17,518 in 1902 there were, for example, not less than nine nationalities represented in considerable number, of which the more numerous were: Hawaiians, 4903; part Hawaiians, 2869; Portuguese, 4124; Japanese, 1993; Chinese, 1395; Americans, 812; Porto Ricans, 596; and Germans, 337. Of the 609 public and private school teachers, 329 are American, 56 British, and 149 are Hawaiian or part Hawaiian. The bulk of the private schools are in Honolulu, and are either endowed, as Oahu College, or are supported by religious bodies, as St. Louis College by the Roman Catholics.

Fire Claims.—Under an act of the Hawaiian legislature in 1901, creating a commission of five persons to adjudicate all claims for property losses by fires started under direction of the board of health in 1899 and 1900, 6748 claims were examined up to June, 1902, when the commission adjourned, and $1,473,173 was awarded to claimants out of a total of $3,175,132.90 asked. The claims arose through an epidemic of the bubonic plague in Honolulu, and through the fact that fires, started to burn condemned buildings, got beyond control. Over $700,000 was spent directly by Hawaii in stamping out the plague, and almost immediately thereafter the Congressional act of 1900, organizing the territory, prohibited Hawaii from borrowing money, and, at the same time, by diverting the customs duties to the federal treasury cut off 37 per cent. of the islands' current revenues. Therefore, while the territorial legislature of 1901 appropriated $1,500,000 to pay the fire claims, it did not provide, and, under the circumstances, could not provide, any adequate means for obtaining this money. The federal government was consequently strongly urged to furnish the necessary amount and a bill to that effect was pending when Congress adjourned on July 1, 1902.

Territorial Needs.—In his report for the fiscal year ending June 30, 1902, the governor, Sanford B. Dole, reiterated the recommendations made by the acting governor, Henry E. Cooper, the year previous, to which Congress had appeared to pay but scant attention. These recommendations were that the Hawaiian silver coins, issued in 1883 to the amount of $1,000,000, be converted into, or be exchangeable for, the corresponding United States coins; that an expert forester be detailed to the territory to organize, in conjunction with the Hawaiian government, a system of forest conservation and development; that the awards of the fire claims commission be paid by the United States, or else that the Hawaiian government be empowered to take over, and pay the awards from, the customs receipts; that the executive be authorized to grant licenses for the diversion of the water belonging to the public lands from those places where it was valueless to arid land otherwise suitable for agriculture; "that a limited immigration of Chinese laborers be permitted, conditioned upon their engaging in agricultural work for hire only during their stay in the territory and subject to deportation at their own expense upon their ceasing to do so." This last recommendation had been especially urged in 1901 by the acting governor, who pointed out that the Congressional act of 1900 organizing the territory and extending the laws of the United States to it had automatically cut off the supply of cheap contract Chinese labor upon which the sugar planters depended, and that in consequence the sugar properties had decreased in value, and would depreciate still more if an adequate supply of eastern labor was not assured. That, however, the need of Hawaii for Chinese labor would remain disregarded seemed to be clearly presaged by the Congressional act of April 29, 1902 (see UNITED STATES, paragraph Chinese Exclusion) continuing in force the exclusion laws relating to the United States and extending to "all territory under its jurisdiction." Other recommendations of the governor were that the federal instead of the territorial government should be charged with the care and improvement of Hawaiian harbors; that the payment of taxes for the preceding years be made a prerequisite to voting for a territorial delegate to Congress, or for territorial senators and representatives; and that the governor be permitted to remove until the next succeeding session of the senate, officers for whose removal the consent of the senate was necessary.

Political.—In January, 1902, President Roosevelt removed Governor Sanford B. Dole from office because of certain charges of collusion with crime and blackmail preferred by Judge Humphreys of the territorial court. Dole was called to Washington, D. C., to answer the charges, and after a thorough investigation President Roosevelt decided that the charges were not sustained and reappointed him as governor of Hawaii, thus vindicating his character and ability as administrator of the territorial government. Henry E. Cooper, Hawaiian secretary of state, was also reappointed to that office.

Elections.—At the regular election for 1902, Jonah Kalauiauoale, Republican, was chosen delegate to Congress by a vote of 6500 to 4700 for Robert W. Wilcox, the Democratic candidate. In the territorial legislature the Republicans will have 30 majority.

Territorial Officers.—Governor, Sanford B. Dole; secretary of territory, H. E. Cooper; treasurer and auditor (acting), H. E. Cooper; attorney-general (acting), S. B. Dole. Supreme Court, chief justice, W. F. Frear.

HAY. This crop, next in value to the corn crop, was a very fair one in 1902, the average yield per acre (1.5 tons) being the highest ever reported by the United States Department of Agriculture with the exception of 1898. The quality, however, was not up to the average, much of the crop being injured by rain in the making. The yields for States having a million or more acres were as follows:

	Acreage, Acres.	Production, Tons.	Value.
Maine	1,278,324	1,367,807	$13,732,782
New York	5,013,987	6,718,743	70,748,364
Pennsylvania	3,103,363	3,693,002	51,702,028
Ohio	2,768,547	3,959,022	40,382,024
Michigan	2,193,567	3,180,672	26,399,578
Indiana	1,804,942	2,635,215	22,847,314
Illinois	2,747,369	4,121,054	36,553,749
Wisconsin	1,720,318	3,268,604	25,854,658
Iowa	3,101,924	5,211,232	33,873,008
Missouri	2,698,654	4,290,860	29,564,025
Kansas	1,888,937	3,211,193	13,840,242
Total for United States	39,825,227	59,857,576	542,036,364

The total yield for 1901 was reported as 50,590,877 tons, and had a value of $506,191,533. This was based upon an estimated acreage of a half million acres less than the returns for 1902. In comparing the returns for the two years, the readjustment of the acreage on the basis of the census returns should be borne in mind. The crop of grass and clover hay in Ontario in 1902 was 4,955,438 tons, and in the United Kingdom 11,277,652 tons, the latter being much above the production in 1901.

The exports of hay from the United States in 1902, as compared by F. H. Hitchcock, chief of the Division of Foreign Markets of the Department of Agriculture, were as follows:

Countries to which Exported.	Tons.	Dollars.	Countries to which Exported.	Tons.	Dollars.
United Kingdom	51,552	794,918	Mexico	10,398	149,341
British South Africa	37,532	705,143	Other countries	6,008	99,709
Philippine Islands	19,134	358,816			
Canada	28,807	472,695	Total	153,431	2,580,622

The imports of hay in 1902 were 48,415 tons, valued at $381,417, almost exclusively from Canada.

The hay crop of the United States includes quite a large proportion of clover and other leguminous plants, the growth and variety of which is steadily spreading to all parts of the country. With the increasing difficulty of securing a stand of clover, substitutes for it, notably alfalfa, are being introduced. It has been demonstrated that alfalfa, formerly confined to the West, can be successfully grown in most of the Northern States, as well as in the Central States and the South. There has been a large amount of experimental work with animals to test the value of alfalfa and its most advantageous use in the ration. This has uniformly shown its high feeding value and pointed a way to the saving of heavy feed bills, the alfalfa hay taking the place of a part of the grain in the ration. For example, the New Jersey experiment station found that when alfalfa hay was fed to cows in place of a ration of 11 pounds of grain the milk production kept up well and the cost was much reduced, the cost per 100 pounds of milk being 83.9 cents on the grain ration and only 55.9 cents on the alfalfa. Good results were likewise obtained with other leguminous hays, such as crimson clover and cow peas. The Missouri experiment station found in feeding experiments with steers that the addition of clover hay or cow pea hay to the ration induced better and cheaper gains, and the steers fed these hays carried to market more finish, a better coat, and a finer "bloom," and would readily have outsold those which did not receive these feeds. Alfalfa hay has also given excellent results with horses and sheep, and the green alfalfa makes fine pasturage for hogs.

HAYTI. See Haiti.

HECTOR, Annie Alexander, an Irish author, better known by her pseudonym of "Mrs. Alexander," died in London, July 10, 1902. Born in Dublin, Ireland, in 1825, she was educated in Dublin and France, and at an early age began to write both fiction and verse. She gave up her writing after her marriage in 1858, but

at her husband's death a few years later she returned to her pen as a means of support and published several poems and a long series of novels. Beginning with *Which Shall It Be?* (1866), and *The Wooing O't* (1873), her works achieved a large measure of popular success both in England and in the United States, but had slight claim to literary recognition and in more recent volumes failed even to justify a certain degree of earlier promise. Among the other writings with which her name is most frequently identified are *Her Dearest Foe* (1876); *The Heritage of Langdale* (1877); *Maid, Wife or Widow* (1879); *The Freres* (1882); *The Admiral's Ward* (1883); *A Second Life* (1885); *By Woman's Wit* (1886); *A Winning Hazard* (1896); *Barbara: Lady's Maid and Peeress* (1897).

HELMUTH, William Tod, an American physician, died in New York City, May 15, 1902. He was born in Philadelphia, Pa., October 30, 1833, and after study at St. Timothy's College, Baltimore, he entered the Homœopathic Medical College in Philadelphia, from which he graduated in 1853 and where in 1855 he became professor of anatomy. Removing to St. Louis, Mo., in 1858, he engaged in active practice and aided in the establishment of the St. Louis College of Homœopathic Physicians and Surgeons, of which he was made dean and professor of surgery. In 1869 he was called to the chair of surgery in the New York Homœopathic Medical College and Hospital, where his subsequent achievements as lecturer and surgeon made him one of the most widely known exponents of homœopathic surgery in the United States. For the last ten years he acted as dean of the college. He was an honorary member of the Société Medicale Homœopathique of France, had been president of the American Institute of Homœopathy and the New York State Homœopathic Medical Society, and was a consulting surgeon at many New York hospitals. The most important of his medical works are *Surgery and its Adaptation to Homœopathic Practice; Treatise on Diphtheria; System of Surgery; Suprapubic Lithotomy; Nerve-Stretching;* and *Antiseptic Surgery.* He was also the author of several witty poems and stories, published as *Medical Pomposity; Scratches of a Surgeon;* and *With the Pousse Café.* From 1875 he was an associate editor of the *North American Journal of Homœopathy.*

HEMPHILL, William, an American publisher and founder of the Atlanta *Constitution,* died August 17, 1902, at Atlanta, Ga. He was born May 5, 1842, in Athens, Ga., was educated in the public schools of that city, and at the University of Georgia, from which he graduated with a special degree in engineering. During the Civil War he served in the Confederate army and was wounded at Gettysburg. After the war he went into the publishing business. He was elected mayor of Atlanta in 1891.

HENDERSON, David Bremner, speaker of the United States House of Representatives in the Fifty-sixth and Fifty-seventh Congresses (1899-1903) announced his retirement from congressional life in September, 1902, and was not a candidate for re-election to the Fifty-eighth Congress in November. He was born at Old Deer, Scotland, March 14, 1840, came to America with his parents in 1846, settling first in Illinois, and removed to Iowa in 1849. He was educated in the public schools and at Upper Iowa University and had begun reading law when his professional studies were interrupted by the outbreak of the Civil War. He at once enlisted as a private in the Twelfth regiment of Iowa volunteer infantry and was commissioned lieutenant before the regiment left the State. He served with bravery and distinction, was wounded in the assault on Fort Donelson and lost a leg at the battle of Corinth, because of which he was honorably discharged in February, 1863. In June, 1864, he obtained another commission, this time as colonel of the Forty-sixth regiment of Iowa volunteer infantry in recruiting which he had displayed great energy, and remained in the field until the conclusion of hostilities. From 1865 to 1869 he was a United States collector of internal revenue in Iowa, and assistant United States district-attorney from 1869 to 1871. He was engaged in the practice of law at Dubuque 1871-82, and in the latter year was elected as a Republican to the Forty-eighth Congress. His service in the house, in which he sat continuously from 1882 to 1902, has been a notable one, and he has been considered the type of unflinching, uncompromising Republicanism. A ready debater, a good parliamentarian, and a conscientious committee worker, he has been for more than a decade one of the recognized leaders of his party in the house. He was one of the leading candidates for the speakership in the Congressional caucus in the Fifty-first Congress which nominated Thomas B. Reed, for ten years was a member of the committee on appropriations, and in the Fifty-fourth and Fifty-fifth Congresses was chairman of the judiciary committee and a member of the committee on rules. Upon the retirement of Thomas B. Reed from Congress in 1899 he became his successor as speaker. Disagreement with his party in Iowa, which had declared for tariff reform, is said to have caused Speaker Henderson to determine upon retirement.

HENRY, Albert William, Prince of Prussia and brother of the German Emperor William II., was born at Potsdam, August 14, 1862, the second son of Emperor Frederick III. After study from 1875 to 1877 at the Cassel gymnasium he entered the German navy and in 1878, on the *Prinz Adalbert* under Captain Seckendorff, started on his first voyage. In 1880 he returned after having visited China and Japan, and studied at the naval academy of Kiel until 1882, when he began another voyage of two years, on board the *Olga*. He commanded a company of the first naval battalion at Kiel in the winter of 1886-87 after additional training at the academy and service as first officer of the *Oldenburg*, served as chief of a torpedo boat division in the summer of 1887, held the command of the yacht *Hohenzollern* in the following year and of the first battalion at Kiel from October, 1890, to February, 1892, and in 1895 was made rear admiral. While commanding a squadron sent out by Germany during the eastern disturbances of 1898 he had considerable cruising experience in Corean and Siberian waters, visited the Emperor of China, and after acting as chief of the entire eastern squadron in 1899, became vice-admiral in December of that year. He was made admiral in September, 1901. On January 1, 1902, the German Emperor requested of President Roosevelt that the President's daughter christen the imperial yacht then building in the United States. The request was granted, and on February 23 Prince Henry arrived at New York as the Emperor's representative at the launching, accompanied by a number of distinguished army and navy officers. Rear Admiral Robley D. Evans of the United States navy was detailed to act as aide-de-camp in the Prince's suite, at the Emperor's special request. After an official welcome by the mayor of New York Prince Henry immediately left for Washington, where on the following day he visited both houses of Congress and was given a state dinner at the White House. He returned to New York on Thursday, February 25, to a most successful launching and a special performance of the opera of great social brilliance; and after a dinner given by American "Captains of Industry" and a banquet by newspaper editors on Wednesday, he again visited Washington and heard Secretary of State Hay's memorial oration on President McKinley. On Friday, February 26, he crossed the Alleghanies in the cab of a locomotive, made short stops at Pittsburg, Columbus, and Cincinnati, visited the battle-grounds of Chattanooga and Lookout Mountain, and on Monday, March 3, reached St. Louis and Chicago. His rapid tour further included Milwaukee, Buffalo, Albany, West Point, and Boston, and at Cambridge on March 6 he received the honorary degree of LL.D. from Harvard University. Once more in New York he was given a dinner by the German Society of the metropolis, was entertained at several private dinners, and after a short expedition to Philadelphia he sailed March 11 on the *Deutschland*. His visit to America was at first construed by many European newspapers as an event of profound international significance. But in the United States his presence was regarded as of no political import, and he was entertained only as a guest of more than usual distinction.

HENTY, George Alfred, an English author, died in Weymouth, England, November 16, 1902. He was born in Trumpington, near Cambridge, December 8, 1832, and was educated at the Westminster School and at Caius College, Cambridge. A short service in the Crimea in the purveyor's department was followed by a promotion to the post of purveyor of the forces, and a charge over the hospitals of the Italian legion. At the end of the war he commanded for a time the Belfast and Portsmouth districts, and then for several years engaged in mining in Wales and Italy. In 1866 he became a special correspondent of the London *Standard*, and in the service of his paper followed the contestants of the Austro-Italian, Franco-German, and Turco-Servian wars, was with Garibaldi in the Tyrol and Lord Wolseley in Africa, made an extended inspection of mining regions in western America, and accompanied the Prince of Wales on his journey through India. His first stories appeared in the *Union Jack*, a boys' magazine which he began to edit after returning from his varied travels, and their instantaneous success led him to devote himself entirely to novel writing. His long service as war correspondent gave him material which seemed inexhaustible, and until his death he was the most prolific and the most popular of contemporary writers of boys' books. The best known of his more serious fiction are *All but Lost* (1869); *Gabriel Allen* (1888); *Dorothy's Double* and *Colonel Thorndyke's Secret* (1898). His most recent writings for boys are *In the Irish Brigade* (1900); *Out with Garibaldi* (1900); *With Buller in Natal* (1900); *At the Point of the Bayonet* (1901); *Malcolm the Water Boy* (1901); *To Herat and Cabul* (1901); *With Roberts to Pretoria* (1901); *The Treasure of the Incas* (1902); *With the British Legion* (1902); *With Kitchener in the Soudan* (1902).

HEPWORTH, George Hughes, American clergyman and author, died in New York City, June 8, 1902. He was born in Boston, Mass., February 4, 1833, and was educated first at the Boston Latin School and then at the Harvard Divinity School, graduating from the latter in 1855. After a pastorate of two years on Nantucket

Island he continued his studies at Harvard, and in 1858 became pastor of the Church of the Unity, in South Boston, where he displayed strong individuality in radical church work. In 1862-63 he served in the Civil War as regimental chaplain and held the same post on the staff of Gen. N. P. Banks during the Louisiana campaign. He went to New York City in 1870 and for two years was pastor of the Unitarian Church of the Messiah. Adopting then the belief in the Trinity, he served as pastor of the Church of the Disciples until 1879, and from 1882 to 1885 had a charge in Newark, N. J. In 1880, the year of the Irish famine, he headed a commission sent to Ireland to distribute among the destitute peasantry a relief fund collected by the New York *Herald,* and after his return became connected editorially with that paper and contributed to it his well known Sunday sermons. He visited Armenia in 1897 to investigate the reported Turkish persecution of Christians, and two years later went to Utah to study the political and social effects of Mormonism. Among his best known writings are *Whip, Hoe, and Sword* (1864); *Rocks and Shoals* (1870); *Hiram Golf's Religion* (1892); *Brown Studies* (1895); *The Farmer and the Lord* (1896); *Through Armenia on Horseback* (1898).

HERBERT, Sir MICHAEL HENRY, British ambassador to the United States, was appointed during the summer of 1902, in succession to the late Lord Pauncefote. The questions pending between the United States and Great Britain are of such moment that only a man of proved ability could fill that position; and the career of Ambassador Herbert, though not remarkable for brilliant successes, has been one of steady and rapid advancement, in which he has won the reputation of being a discreet and farsighted diplomat. Besides, he had already been attached to the British legation at Washington, and by residence and family affiliations was known to many prominent Americans. Upon him largely devolves the opportunity of maintaining during his term of office the increased friendly relations between the United States and Great Britain. He was born in 1857, and after completing his education, was appointed an attaché of the British legation in Paris, being made second secretary in 1883. In 1888 he was transferred to Washington, where he was chargé d'affaires for four months, and promoted to be secretary of legation in 1892. During 1893-94 he was secretary of legation at The Hague, and was then transferred to Constantinople, where he did valuable service as chargé d'affaires during the temporary absence of Sir Philip Currie. In 1897 he was secretary of the embassy at Rome and in the following year went to Paris, where his rank was raised to that of minister plenipotentiary. There he remained until transferred to his present post.

HERRON, FRANCIS JAY, a major-general in the Union Army during the Civil War, died January 8, 1902, in New York City. He was born February 17, 1837, at Pittsburg, Pa., and graduated at the Western University of Pennsylvania in 1853. At the outbreak of the Civil War he raised a company and joined the First Iowa volunteers. He was engaged in the battles of Dug Springs, Ozark, and Wilson's Creek, and was promoted lieutenant-colonel in September, 1861. He commanded the Ninth Iowa volunteers in the campaigns in Missouri, Arkansas, and Indian Territory, and was wounded and taken prisoner at Pea Ridge, a battle in which his gallantry was singled out by Congress for the award of a medal in 1893. He was exchanged, and promoted brigadier-general of volunteers in July, 1862, commanded the Army of the Frontier in the battles of Prairie Grove and Van Buren, and was promoted major-general. In 1863 he joined Grant at Vicksburg. He received the surrender of the trans-Mississippi army of 60,000 men, together with all of the Confederate military stores in the Western States. Soon after the war he resigned his commission as major-general, and went into business in New York City.

HERZEGOVINA. See BOSNIA AND HERZEGOVINA.

HILPRECHT, HERMANN VOLRATH, a German-American Assyriologist, whose recent explorations have aroused wide interest, was born at Hohenerxleben, Germany, in 1859, obtained his education at Bernburg and Leipzig, and after tutoring in theology for a year at Erlangen removed to Philadelphia in 1886 to edit the Oriental department of the *Sunday School Times,* at the same time being appointed professor of Assyriology in the University of Pennsylvania. In 1888 he was one of the two Assyriologists who represented the scientific work of the expedition sent out by the University of Pennsylvania to excavate the ancient city of Nippur, the ruins of which have yielded over 75,000 inscribed objects. During the summers of 1894-95 he explored the region of Cappadocia in order to determine the character of the antiquities discovered in that country. He was the scientific director of the recent excavations at Nippur, when the famous temple library was discovered which yielded 20,000 tablets belonging to the third millennium B.C., and many other important antiquities. In 1902 his professorship at the university was endowed by Messrs. Edward W. and Clarence H. Clark with $100,000, and in the same year he received the Lucy Wharton Drexel medal in recognition of his contributions to

archæology and philology. Since 1893 he has been a curator of the Imperial Ottoman Museum in Constantinople. His chief works are: *Freibrief Nebuchadnezzar I.* (1883); *Old Babylonian Inscriptions, chiefly from Nippur*, cuneiform texts (part i. 1892; part ii. 1894); *Assyriaca* (1894); *Business Documents of Murashû Sons of Nippur, dated in the reign of Artaxerxes I.*, cuneiform texts (1898); *Explorations in Bible Lands during the Nineteenth Century* (1903); *Business Documents of Murashû Sons of Nippur, dated in the reign of Darius II.*, cuneiform texts (1903); and *Dated Tablets from the Cassite Archives of Nippur*, cuneiform texts (1903).

HINES, Harvey Kimball, American Methodist clergyman, died in Portland, Ore., January 19, 1902. He was born in Herkimer County, N. Y., in 1828, was licensed to preach in 1847, and in 1853 became a member of the Oregon conference. From then until his death he was most actively engaged in religious work, and in the performance of his duties as pastor, public speaker, and presiding elder of the State of Washington and of nearly all of Oregon and Idaho, he became the most widely known minister in the northwest. Prominent in politics as well as in ecclesiastical matters, he was a member of the territorial legislature of Washington in 1864 and 1866, was at one time president of the territorial council, ran for Congress, though unsuccessfully, as a Republican candidate from Oregon, and in 1876 served as a delegate to the National Republican convention. He was for eight years editor of the *Pacific Christian Advocate*, and was the author of *Missionary History of Oregon*.

HIRSCH, Jenny, a German author, died in Berlin, March 10, 1902. She was born in Zerbst, November 25, 1829, and after several years of teaching was, from 1860 to 1864, a member of the staff of the Berlin *Bazar*, for which she wrote under the pen name of "J. W. Heynrichs." The movement for broadening the field of vocations open to women and for increasing their educational privileges early enlisted her sympathies, and for many years she was the secretary of the Lette-Verein. She edited *Der Frauenanwalt* from 1870 to 1882, the *Deutschen Hausfrauenzeitung* from 1887 to 1892 (with Lina Morgenstern), translated Mill's *Subjection of Women* under the title *Hörigkeit der Frau* (3d ed. 1891), and under the pseudonym of "J. Arnefeldt" wrote *Befreit* (1882); *Der Väter Schuld* (1882); *Schwere Ketten* (3d ed. 1884); *Die Erben* (1889); *Schlangenlist* (1891); *Vermisst* (1894); *Löwenfelde* (1896); *Schuldig* (1899); *Camilla Feinberg* (1901). Among works published over her own name are *Geschichte der 25 jährigen Wirksamkeit des Lette-Vereins* (1891), and the romances *Der Amerikaner* (1894); *Theresens Glück* (1899); *Auf Umwegen* (1900).

HIRTH, Friedrich, a German-American Chinese scholar, was appointed to the chair of Chinese, in 1902, at Columbia University, the first to be established in the United States. He was born in Gräfentonna, Germany, in 1845, studied at Leipzig, Berlin, and Greifswald, and lived for twenty-seven years in China, where he was in the customs service under Sir Robert Hart. Professor Hirth is regarded as one of the leading authorities in the Christian world on Chinese language, literature, and customs. His valuable collection of ancient porcelains is in the Gotha Museum, and a collection of Chinese manuscripts and printed books is in the Royal Library at Berlin. He applied the methods of classical philology to his investigations in Chinese, and has been able to trace in contemporary Chinese authors many things long lost in obscurity, such as the invention of porcelain and the trade routes by which the famous celadon variety was brought to western countries by Arab traders of the Middle Ages. Some of his publications are: *China and the Roman Orient* (1885); *Ancient Porcelain* (1888); *Text-Book of Documentary Chinese* (2 vols., 1885-88); *Chinesische Studien* (vol. 1. 1890); *Ueber fremde Einflüsse in der chinesischen Kunst* (1896). The courses offered by the Chinese department at Columbia fall in three groups, treating of the written language, the spoken language, and history and general knowledge of China.

HISTORICAL ASSOCIATION, AMERICAN, founded in 1884, and incorporated by act of Congress in 1889, for the promotion of historical studies. An annual meeting is held during the closing week of the year at some city in the East, or in the West, or in the District of Columbia, in triennial succession. The work of the association is carried on chiefly through committees, the following being the standing committees, with their respective chairmen, for 1902: Historical manuscripts commission, Professor Edward G. Bourne; committee on Justin Winsor prize, Prof. C. M. Andrews; committee on bibliography, E. C. Richardson; public archives commission, Professor William MacDonald; committee on publications, Professor George L. Burr; board of editors of *American Historical Review*, Professor William M. Sloane; general committee, Charles H. Haskins, Ph. D. At the annual meeting for 1902, held December 26-31, in Philadelphia, in conjunction with the American Economic Association, the following papers were read: "Subordination in Historical Treatment," Alfred Thayer Mahan, LL. D., president of the

American Historical Association; "Economics and Social Progress," by Edwin R. A. Seligman, president American Economic Association; "The American of 1775," James Schouler; "Antecedents of the Declaration of Independence," James Sullivan, New York High School of Commerce; "Letters from Federal Convention of 1787," Professor J. Franklin Jameson, Chicago University; "A Neglected Point of View in American Colonial History," Professor William MacDonald, Brown University; "Diplomacy and the Withdrawal of the French from Mexico," Prof. C. A. Duniway, Leland Stanford Jr. University; "The French Parliaments," Hon. James Breck Perkins; "The Art of Weaving—A Hand-Maid of Civilization," William B. Weeden; "The Attractiveness of History," Professor Charles W. Colby, McGill University; "The French Communes in the Light of their Charters," Professor Earl W. Dow, Michigan University; "Municipal Problems in Mediæval Switzerland," Professor John M. Vincent, Johns Hopkins University; "Some Bibliographical Notes on Italian Communal History," Arthur M. Wolfson, De Witt Clinton High School, New York; "American Constitutional Principles in the Constituent Assembly," Professor Henry E. Bourne, Western Reserve University; "The West and Nationality," Professor John L. Stewart, Lehigh University; "Party Politics in Indiana During the Civil War," Professor James A. Woodburn, Indiana University; "Currency Problems in the Orient," Prof. J. W. Jenks, Cornell University; "American Business Corporations Before 1789," Judge Simeon E. Baldwin, Supreme Court of Errors, Connecticut; "The Scots Darien Settlement," Hiram Bingham; "A Letter of Humboldt Touching the Isthmian Canal," George G. Wilson; "The National Canal Policy," L. M. Keasbey; "The Neutralization Features of the Hay-Pauncefote Treaty," John H. Latane; "Central America and the American Foreign Policy," J. W. Callahan; "England and the Suez Canal," Theodore S. Woolsey. The Justin Winsor prize of $100 for 1902 was awarded to Dr. Charles McCarthy, Madison, Wis., for his monograph on the "Anti-Masonic Party." Membership at the close of 1902 was 1850. President, Henry Charles Lea, LL. D.; secretary, A. Howard Clark, Smithsonian Institution, Washington, D. C.

HITCHCOCK, Henry, an American lawyer, died in St. Louis, Mo., March 18, 1902. He was born in Spring Hill, Ala., July 3, 1829, graduated at the University of Tennessee in 1846, and in 1848 from Yale, which granted him the degree of LL. D. in 1875. He was for a time an instructor in the Worcester (Mass.) High School, studied law in the office of Judge William F. Copper in Nashville, and in 1851 was admitted to the St. Louis bar. After acting as assistant editor of the St. Louis *Intelligencer* (Whig), from 1851-52, he began active practice and soon became prominent in politics. During the Civil War he served as assistant adjutant-general of volunteers, was on General Sherman's staff as judge-advocate during the march to the sea, received in March, 1865, the brevet of lieutenant-colonel of volunteers for services during the campaigns in Georgia and the Carolinas and in April of the same year bore the despatches to Washington which announced the truce between Sherman and Johnston. He was one of the organizers of the St. Louis Law School, of which he was dean from 1867 to 1880, and was one of the founders of the American Bar Association, of which he was president from 1889 to 1890. He was elected vice-president of Washington University in 1886, was a trustee of the Carnegie Institution, and was connected as an organizer or official with the Missouri State Bar Association, the Missouri Civil Service Reform Association, and the National Civil Service Reform League. President Harrison named him for the United States Supreme Court bench, but he was unwilling to relinquish his large legal practice. It is said that from his character and career was drawn "Stephen Brice" in Winston Churchill's historical novel *The Crisis*.

HOADLEY, George, ex-governor of Ohio, died August 26, 1902, at Watkins, N. Y. He was born July 31, 1826, at New Haven, Conn. In 1830 his family removed to Cleveland, O., and he graduated at Adelbert College (now part of Western Reserve University) in 1844, studied law at Harvard, and was admitted to the bar in 1847. Two years later he became a partner of Salmon P. Chase. In 1851 he was appointed a justice of the superior court of Ohio and served for two years. He was originally a Democrat, and although he left that party on account of his aversion to slavery, he returned to it in 1871 in opposition to the protective tariff. In 1873 he was a member of the State constitutional convention, and in 1883 was elected governor. He was a professor in the Cincinnati Law School from 1864 until he removed, in 1887, to New York City, where he continued to practise law.

HOBART, Harrison Carroll, an American soldier and politician, died in Milwaukee, Wis., January 26, 1902. He was born in Ashburnham, Mass., January 31, 1815, and in 1843 graduated at Dartmouth College. In 1846 he began the practice of law in Wisconsin, was the representative from Sheboygan and Washington counties in the territorial legislature that met in 1847, and was the first State senator from his district. He was the last survivor of the Wisconsin Constitutional Convention,

and was actively interested in the politics of Wisconsin during its early statehood. In 1849 he was the speaker of the lower house. During the Civil War he served as captain of the Fourth Wisconsin Infantry, and as lieutenant-colonel and colonel of the Twenty-first Wisconsin Infantry; and was one of the five Union prisoners who escaped from Libby prison through the famous Ross tunnel. In 1865 he was brevetted a brigadier-general of volunteers.

HOFFMAN, EUGENE AUGUSTUS, an American clergyman, educator, and philanthropist, died at Rouse's Point, Clinton County, N. Y., on June 17, 1902. Born in New York City March 31, 1829, he graduated at Rutgers College in 1847, at Harvard in 1848, at the General Theological Seminary in 1851, was ordained priest of the Protestant Episcopal Church, and from 1851 to 1853 was in charge of Grace Church, Elizabethport, N. J. Subsequently he was rector of Christ Church, Elizabeth, N. J. (1853-63), of St. Mary's, Burlington, N. J. (1863-64), of Grace Church, Brooklyn, N. Y. (1864-69), and of St. Mark's, Philadelphia, Pa. (1869-79). In 1879 he succeeded to the office of dean of the General Theological Seminary. He found the institution in an extremely unsatisfactory condition, but by his skill as an organizer and financier and his notably munificent gifts made it the foremost seminary of the church in the United States, with a splendid equipment after the model of the historic English universities. His administration was characterized by Dr. Morgan A. Dix as "without a parallel, so far, as I believe, in our ecclesiastical annals." To the library of the seminary he gave a copy of the Gutenberg Bible, and for it he completed the collection of Latin bibles, the finest and most valuable in existence, surpassing those of the British Museum and the Bibliothéque Nationale. He also presented to the Museum of Natural History of New York City gifts of rare specimens, collected in America, Asia, and Africa, and at St. Luke's Hospital endowed a private room for the use of the clergy of the church. He was deputy from the diocese of New York to five successive general conventions, was one of the board of managers of the Domestic and Foreign Missionary Society, a fellow of the American Museum of Natural History, and president of the New York Historical Society. His publications include *Free Churches* (1856), and *The Eucharistic Week* (1859). Among the degrees conferred upon him was that of D.D. by the University of Oxford.

HOFMANN, HEINRICH (KARL JOHANN), a German composer, died in Berlin, July 19, 1902. He was born in Berlin, January 13, 1842, and studied music there in Kullak's conservatory. He attained considerable repute as a pianist and teacher, but the flattering reception accorded his *Hungarian Suite* (1873) and *Frithjof Symphony* (1874) led him to abandon his other musical activities for composition. Many operas, oratorios, choral works, songs, orchestral pieces and pianoforte compositions are numbered among his writings. Chief among his operatic productions are *Cartouche* and *Armin* (1872); *Annchen von Tharau* (1878); *Donna Diana* (1886). Of his choral works *Die schöne Melusine* (op. 30); *Aschenbrödel* (op. 45), and *Editha* (op. 100) are well known in America. His pianoforte compositions, besides the familiar duets *Italienische Liebesnovelle*, include *Liebesfrühling, Silhouetten aus Ungarn, Steppenbilder, Suite Hongroise,* and many others. He was a member of the Royal Academy of Arts in Berlin.

HOLLAND. See NETHERLANDS.

HOLMES, OLIVER WENDELL, chief-justice of the Supreme Court of Massachusetts since 1899, was appointed on August 11, 1902, by President Roosevelt a justice of the Supreme Court of the United States, to succeed Justice Horace Gray (*q.v.*), who retired on that day. He is the son of Dr. Oliver Wendell Holmes, and was born in Boston, Mass., March 8, 1841. He graduated at Harvard in 1861, and immediately entered the Union Army as a lieutenant in a Massachusetts volunteer regiment. He served with distinction until 1864, was wounded at Ball's Bluff, Antietam, and Fredericksburg, and was successively brevetted major, lieutenant-colonel, and colonel for gallant and meritorious service. After leaving the army he entered the Harvard Law School, where he graduated in 1866. Beginning practice in Boston his rise at the bar was rapid. He was editor of the *American Law Review* from 1870 to 1873. In the latter year he entered the law firm of Shattuck, Holmes and Monroe, with which he was associated until his elevation to the bench in 1882, as an associate justice of the State Supreme Court, of which he became chief justice in 1899. In 1882 he was also in the faculty of the Harvard Law School. A series of lectures on *The History of the Common Law*, delivered at the Lowell Institute in Boston, and published in 1881, won him fame as a legal writer. The book remains to-day one of the best authorities upon the subject, and is as highly thought of in England as in America. Another enduring work is his edition—the twelfth—of Kent's *Commentaries*. In addition to his extensive legal learning and judicial experience, he is a man of great energy and ability as an orator.

HOLUB, EMIL, an Austrian traveler and explorer, died in Vienna, February 21, 1902. He was born in Holitz, Bohemia, October 7, 1847, and after studying medicine

and natural history for a time at the University of Prague, he went to South Africa, where he began to practise as a physician. His interest in natural history led him to make several journeys through the region of the Zambesi, and in 1879 he returned to Europe with a valuable collection of zoological and ethnological specimens. He continued his scientific and mathematical studies, took his degree as doctor of medicine, and aided by public and imperial contributions, in 1883 renewed his travels through central Africa. Starting from Kapstadt he reached Schoschong in Bechuanaland in 1887 after many hardships, and returned soon after to Vienna with another large collection, which after public exhibition was distributed among various institutions of learning. The Emperor Francis Joseph conferred upon him the Order of the Iron Crown. He gave many lectures on South African affairs, which were of especial interest during the Boer War, and published *Kulturskizze des Marutse-Mabunda-Reichs* (1879); *The Victoria Falls* (1879); *Sieben Jahre in Südafrika* (1880-81); *Die Kolonisation Afrikas* (1882); *Beiträge zur Ornithologie Südafrikas* (1882); *Von Kapstadt ins Land der Maschukulumbe* (1888-90).

HONDURAS, a Central American republic, borders on the Caribbean Sea and touches the Pacific at the Gulf of Conchagua. The capital is Tegucigalpa.

Area and Population.—The estimated area is about 43,000 square miles. In 1901 the boundary line between Honduras and Nicaragua was established from the Pacific coast to Portillo de Teotecacinte, but from that point to the Atlantic the boundary remains in dispute. In 1902 the congress enacted a law, to take effect on the 15th of September, creating a new department (state), Atlantida, which extends on the Caribbean Sea from Tela on the west to Belfata on the east, and reaches inland about 50 miles. The capital of the new department is La Ceiba. According to a census taken in 1901, the results of which became available in 1902, the population of Honduras, exclusive of uncivilized Indians, was 543,741. Most of the inhabitants are of Indian blood. Roman Catholicism is the prevailing religion, but there is no state church. Primary instruction is free, secular, and nominally compulsory. At the beginning of 1902 there were 784 public schools, with 28,026 pupils in attendance. A number of schools are provided by the government for more advanced education.

Government.—The executive authority is vested in a president, who is elected by popular vote and is assisted by a cabinet representing five departments. The legislative power rests with a congress of deputies. The president in 1902, for the four-year term ending January 31, 1903, was Gen. Terencio Sierra. The regular army numbers only about 500 men; the militia numbers upwards of 40,000.

Finance.—The monetary standard is silver, and the unit of value the peso, worth 42.8 cents on October 1, 1901, and 38.4 cents on October 1, 1902. The most important source of revenue is customs, and the largest item of expenditure is for the department of war. The reported revenue and expenditure for fiscal years were 2,842,005 pesos and 2,629,815 pesos respectively in 1900, and 3,017,273 pesos and 2,840,397 pesos respectively in 1901. The estimates for the fiscal year 1903 balanced at 2,629,050 pesos. The external debt with arrears of interest, unpaid since 1872, amounted in July, 1901, to £18,761,622 ($91,303,433). The internal debt in 1901 was 1,285,208 pesos.

Production and Commerce.—The leading crops are tobacco, sugar, corn, coffee, and bananas, the last named being the most important. Considerable attention is given to cattle raising. The mineral resources of Honduras are remarkable in richness and extent, and although they are little developed on account of poor transportation and the usual risks attending investments in Latin-American countries, metals (including ores) occupy first place among the exports. According to an official report the New York and Honduras Rosario Mining Company, at San Juancito, has an annual output of gold and silver bullion valued at about $1,000,000. The leading imports include cotton textiles and iron and steel goods. The reported values in pesos (silver) of imports and exports in the fiscal year 1897 were 1,131,315 and 2,647,248 respectively; in 1900, 2,416,625 and 5,930,104 respectively; and in 1901, 4,168,599 and 6,183,023. Of the latter imports 3,344,575 pesos were dutiable. The principal items of export in 1901 were metals (precious), 2,279,115 pesos; fruits (chiefly bananas), 1,945,388 pesos; live stock, 557,316 pesos; coffee, 275,194 pesos; cabinet woods, 274,255 pesos. The values of imports in pesos from countries of greatest trade importance in 1901 were: United States, 2,792,822; Germany, 486,274; Great Britain, 471,691; British Honduras, 152,800; France, 101,856. Of the exports about 70 per cent. were shipped to the United States and a large part of the remainder to Germany. A railway is in operation from Puerto Cortez to La Pimienta, 110 kilometres (68 miles) distant. At the beginning of 1902 the total length of telegraph wires was 3166 miles.

Presidential Contest.—A bitterly contested presidential campaign was carried on during the summer and fall of 1902, and the vote on October 25 did not result in an election. There are about 59,000 voters in the country, while about 85,000 votes were cast. The candidates were: Señor Marco Aurelio Soto, Gen. Manuel Bonilla, and

Señor H. A. Rias. Señor Bonilla, who is a cousin of the late President Policarpo Bonilla, received 40,000 votes; Soto, 25,000; and Rias, 20,000. It was stated that the question of the election would be taken up by the congress meeting in January, 1903; meanwhile General Sierra would remain in office. Before the end of the year, however, it appeared that Bonilla would attempt to establish his claim by force, and civil war seemed imminent.

HONG KONG, a British crown colony in Asia, consists of an island lying off the southeastern coast of China, at the mouth of the Canton River, and of a strip of the mainland leased from the Chinese government in 1898 for a term of 99 years. The island, which is separated from the mainland by a narrow strait half a mile wide, has an area of about 32 square miles and a population (1901) of 297,212, largely Chinese. The mainland has an area of 376 square miles and an estimated population of 100,000.

The capital is Victoria, commonly known as Hong Kong. The imperial garrison numbers 4000 men, including the Hong Kong local regiment. The governor in 1902 was Sir Henry A. Blake (since 1897). The revenue, accruing largely from taxes, licenses, and the opium monopoly, amounted in 1900 to 4,202,586 dollars and the expenditure to 3,628,447 dollars. (The dollar is the Mexican silver dollar valued, October 1, 1901, at 46.4 cents, and October 1, 1902, at 41.7 cents.) There is a public debt of £341,800 and a note circulation (1900) of 10,380,538 dollars. Victoria is a free port, and the commerce, which is virtually a part of the commerce of China, is largely trans-shipping. Trade is chiefly with Great Britain, India, Australia, the United States, and Germany, about 50 per cent. being with Great Britain. The import and export trade with Great Britain was (1900) £1,066,048 and £2,762,882 respectively, and is increasing rapidly. The principal articles of export are tea, silks, hemp, preserved fruits, and opium. The tonnage of the registered shipping in 1900 was 29,197.

HOPKINS, Albert J., congressman from Illinois since 1885, was endorsed by the Illinois Republican State Convention in September, 1902, for United States senator, thus practically assuring his election as the successor of Senator William E. Mason in the Fifty-eighth Congress. He was born in De Kalb County, Ill., August 15, 1846, and after graduating at Hillsdale (Michigan) College in 1870, studied law and began the practice of his profession at Aurora, Ill. From 1872 to 1876 he was State's attorney for Kane County, was a member of the Republican State central committee of Illinois from 1878 to 1880, and a Presidential elector in 1884. At the same election he was chosen to represent the Eighth Illinois District in the Forty-ninth Congress, and has been re-elected at every succeeding election. He has taken a prominent part in legislation, and in 1899 was a leading candidate for the caucus nomination for speaker to succeed Thomas B. Reed.

HOPKINS, Henry, who was inaugurated president of Williams College in September, 1902, in succession to Dr. Franklin Carter, is the son of Mark Hopkins, the noted educator, who was president of the same institution for thirty-six years (1836-72). He was born November 30, 1837, in Williamstown, Mass., graduated at Williams in 1858, and studied two years at the Union Theological Seminary in New York City. He was appointed a chaplain in the army by President Lincoln and served through the Civil War as hospital chaplain at Alexandria, Va., and in the field with the 120th New York Volunteers. In 1868 he became pastor of the Second Congregational Church at Westfield, Mass., and, in 1880, of the First Congregational Church at Kansas City, Mo. He was chaplain of the third regiment of the national guard of Montana from 1887 to 1889, and chaplain in 1899 of the commandery-in-chief of the Military Order of the Loyal Legion. He is also a trustee of Williams College, and a vice-president of the American Board of Commissioners for Foreign Missions, and the American Missionary Association. A number of his sermons and addresses have been published.

HOPS. The division of foreign markets of the Department of Agriculture reports the exports of hops from the United States in 1902 to have been as follows: United Kingdom, 9,503,526 pounds, value $1,401,915; Canada, 570,340 pounds, $72,664; British Australasia, 413,396 pounds, $45,986; other countries, 222,889 pounds, $30,092—total, 10,715,151 pounds, $1,550,657. The imports were 2,805,293 pounds, valued at $833,702, of which 2,466,899 pounds came from Germany, 290,783 pounds from Austria-Hungary, and 47,611 pounds from other countries.

Fruwirth and Zielstorff in Germany found that a diminution of nitrogen and phosphoric acid occurred in the leaves and vines of the hop in the fall and interpreted this result as due to a translocation of these substances from the leaves and vines to the other parts of the plant. From his own experiments and observations Remy concludes that a minimum content of phosphoric acid in the lower leaves of the hop plant at the beginning of the blossoming period is an indication of the lack of that element in the soil. He found that the nitrogen requirement of hops varied

greatly with the variety, the English varieties requiring much more nitrogen than those grown on the continent of Europe. Experiments by the Southeastern Agricultural College at Wye, England, have shown that without cultivation as good results are obtained as with deep cultivation. In the experiments reported, a plot of 24 hills, which for seven years received no cultivation except the mere destruction of weeds by the lightest hoeing, yielded 150 pounds of green hops; while two other plots with the same number of hills, one deeply cultivated and the other uncultivated for one year, each gave 144 pounds. A larger tract receiving no cultivation averaged 2400 pounds of dry hops per acre. Where no cultivation was given, the manures were simply put on the surface of the soil. Gross in Bohemia found that pruning largely increased the yield of hops. The unpruned plants developed too many leaves and underground stems for proper cultivation and profitable production.

To aid the hop industry in the United States the Department of Agriculture has secured from various foreign sources varieties which in general are of greater value and better quality than many now grown in this country. It is hoped that by the dissemination of these imported varieties the area now producing inferior varieties may speedily be restricted and the average quality of the American product improved. At present the American hop is fairly rich in lupuline, but is regarded in foreign markets as inferior in quality to varieties grown on the continent of Europe. Progress is being made here in the construction and use of the drying kiln and a better and more uniform product is the result.

HORTICULTURE. Estimates for 1902 place the apple crop at about 43,000,000 barrels as compared with 27,000,000 barrels in 1901. The keeping quality of the fruit has been considerably impaired by wet weather in the Central and Western States. The foreign demand for apples is especially active owing to short crops in nearly all European countries. The American apple trade is being revolutionized by the erection of cold storage plants in the fruit-growing centres and shipments made direct to consuming points. The California citrus crop, which in the early part of the season promised to be a record breaker, was greatly reduced by untoward weather conditions, and only a normal crop was secured. The raisin crop of 100,000,000 pounds was next to the largest ever produced in California. In the eastern United States the grape crop was light. The cranberry crop of 675,000 bushels was about 275,000 bushels less than in 1901. The keeping quality of the crop was also injured by excessively wet weather. The tomato pack in 1902 in the United States and Canada was about double that of the preceding year.

The possibility of shipping perishable fruits to English markets has been investigated by the governments of both the United States and Canada. Summer apples, peaches, grapes, and pears have been forwarded under varying conditions and generally very satisfactorily. The English market for early varieties of American apples has proved especially attractive. Elberta peaches in commercial quantities have been successfully shipped from the orchards of Georgia and Connecticut, via New York, to England, packed only as for the New York market. The work of the United States Department of Agriculture with peaches has clearly brought out the fact that these fruits in cold storage should be held in a temperature of approximately 32° F. rather than 36° to 40° F. as has been commonly the case heretofore. Thus handled the fruit keeps longer without change, holds its flavor better, and is less perishable when taken from cold storage and placed on the market.

Twelfth Census Statistics.—According to the United States Census of 1899, 5,753,191 acres or 2 per cent. of the total area of the country devoted to crops was planted in vegetables. The vegetables grown had a total value of $238,846,908, which is about 8.3 per cent. of the total value of all farm crops. The average of all farm products per acre was $10.04, while for all vegetables it was $42.09. The potato was the most important vegetable grown. It occupied 51.1 per cent. of the total acreage devoted to vegetables, and was valued at $98,387,614, or $33.48 per acre. The production was 273,328,207 bushels, an increase of about 25 per cent. over the preceding decade. Sweet potatoes ranked second in value of the vegetables grown in the United States, the yield from the 537,447 acres grown being 42,526,696 bushels, and the value per acre $36.98. The acreage given to a number of the other more important vegetables is as follows: Watermelons, 199,849; sweet corn, 199,729; tomatoes, 197,489; cabbages, 150,156; muskmelons, 60,854; onions, 47,983; green peas, 30,443; green beans, 15,004; asparagus, 10,192; turnips, 9699; celery, 9327; beets, 8144; and chicory, 3069 acres.

The most important vegetable-growing States mentioned in the decreasing order of their acreage for 1899 are New York, Michigan, Pennsylvania, Wisconsin, Ohio, Iowa, Illinois, Missouri, Virginia, Indiana, Texas, and Minnesota. The heaviest yielding potato States were New York, Wisconsin, Michigan, and Pennsylvania. Georgia, North Carolina, Alabama, South Carolina, and Texas led in the order named in the production of sweet potatoes; New York and Ohio in the production of onions; New York, Illinois, and Michigan in cucumbers; Texas and Georgia in

watermelons; New Jersey, Illinois, and Texas in muskmelons; New York, Virginia, Pennsylvania, and Illinois in cabbage; California and New Jersey in asparagus; and Michigan, New York, and California in celery. Michigan produced over 92 per cent. of the chicory grown in the United States. Commercial gardening, that is, truck and market gardening, appears to have increased about 100 per cent. at the North, and fully 200 per cent. at the South during the decade.

Relative to the canning industry, the statistics show that the yearly output is now about double that of a decade ago. The pickles, preserves, and sauces put up in 1900 were valued at $21,507,046, and the canned fruits and vegetables at $56,668,313, of which the vegetables approximated but did not exceed one-half the total value. About two-thirds of the vegetables canned consist of corn and tomatoes. Peas stand next in importance. The number of cases of vegetables holding 24 cans each packed in 1899, was as follows: Tomatoes, 8,905,833; corn, 6,365,967; and peas, 2,738,251. Standard tomato cans hold 3 pounds each, and corn and pea cans 2 pounds each. Maryland and Indiana were the heaviest packers of tomatoes, New York and Illinois of corn, and Maryland and New York of peas. Considerable quantities of such other vegetables as asparagus, lima beans, string beans, okra, pumpkin, squash, succotash, sweet potatoes, etc., are yearly put up in cans. The prices of canned goods have decreased about 25 per cent. during the last decade.

The total value of all fruits produced in the United States in 1899 was $131,423,517. Orchard fruits alone were valued at $83,751,840; grapes, $14,090,937; small fruits, $25,030,877; and subtropical fruits, $8,549,863. During the last decade orchard fruit production as a whole increased 15.4 per cent. Apples alone constituted 55 per cent. of all orchard trees, peaches and nectarines, 27.2 per cent.; and plums and prunes, 8.4 per cent. The total acreage of small fruits was 304,029, and the value of the product per acre $82.33. Strawberries constituted about 50 per cent. of the total acreage of small fruits. Raspberries stood next in importance.

The total value of all cultivated nuts was $1,950,161. California alone reported 73.9 of this total. That State leads in the production of almonds and English walnuts. Texas leads in the production of pecans.

In 1899 there were 30,417 farms reporting land under glass representing a total of 96,230,420 square feet, or over 2200 acres. Of this number, 6159 were commercial florists' establishments having about 51,023,000 square feet of land under glass. The total wholesale value of floricultural products was $18,759,464, of which $17,377,860 was for florists' products. The retail value, it is thought, could not have been less than $30,000,000. The annual income from cut flowers alone is estimated at $12,000,000 to $14,000,000. The sale of cut roses is estimated at $6,000,000; carnations, $4,000,000; violets—which stood third in importance—$750,000; and chrysanthemums, $500,000. The annual production of roses and carnations is 100,000,000 each; violets, 75,000,000. The average prices for roses and carnations is 20 to 25 per cent. higher than ten years previous, while violets, lilies of the valley, and tulips have considerably decreased in price.

Relative to the nursery business, the twelfth census showed a total of 2029 establishments with 137,459 acres devoted to the growing of young trees. The value of the products from this area was $9,231,503. New York leads in the production of nursery stock with a total of 237 establishments, yielding products valued at $1,703,354. Other leading States in value of product, are Iowa, $636,543; Illinois, $610,971; California, $533,038; Ohio, $538,534; and Pennsylvania, $515,010.

Experiment Station Work.—Among the leading facts recently brought out by the experiment stations in the United States along horticultural lines are the following: Dwarf tomatoes promise to give larger profits when grown under glass than do the standard sorts usually grown. Rane found that dwarf tomatoes mature fully as early as the standard sorts, bear through a longer period, and are more productive area for area. Waldron has shown that the common practice in eastern States of cultivating orchards up to the middle of the summer and then seeding down to some cover crop will not do at all in the cold, dry Northwest.

Cultivation there should be continued right up to late fall in order to conserve every drop of moisture in the soil and should be followed by a mulch of straw or litter to prevent further drying of the soil during the winter. Cranfield in Wisconsin found that all fruit tree growth at the station had stopped by July 10 though root growth continued until October. A number of stations have reported further work on the self-fertility or self-sterility of many of our orchard fruits and grapes. The list of self-sterile sorts has been considerably enlarged, while many sorts hitherto considered self-fertile have been found to bear larger and better fruits when cross-pollenized, thus emphasizing more strongly than ever the great desirability of mixing varieties in orchard plantings. With plums Waugh considers that at least every third row should be of a different sort.

The New York stations have pointed out the fact that it is a common mistake among farmers engaged in intensive operations to use too much commercial fer-

tilizer. For onions on good soil 500 pounds of mixed fertilizers gave very nearly as good yields as 2000 pounds, while the danger from financial loss was considerably lessened. More cultivation and less fertilizer is advocated. Hume at the Florida station has presented a monograph of the Peen-To peach group. Voorhees in New Jersey has brought out more clearly than ever the value of an extra supply of nitrate of soda for market garden crops, and the advisability of applying it two or three different times during the growing season. Rane has presented a system of classification for watermelons.

The Canadian stations have made great progress in crossing apples to secure hardy varieties for the cold Northwest. The small hardy *Pyrus baccata* has been crossed with such hardy improved varieties as Tetovsky, Wealthy, and Duchess. Already sixteen or seventeen named varieties have been obtained. The apples are small but promise great usefulness to the people of those regions. Some of them make very good apple sauce and all exceedingly good jelly.

Etherization of Plants.—In Europe, particularly in Germany, the forcing of plants by means of the fumes of ether is coming rapidly into commercial importance. The principle observed in etherization is completely to arrest growth and force the plant into its resting period earlier than usual, after which it is placed in the greenhouse under ordinary forcing conditions. In practice the plants are placed in an air-tight chamber and subjected to the fumes of sulphuric ether for 48 to 50 hours at a temperature of 50° to 60° F. About 400 grams of ether is considered sufficient for a cubic metre of air. Lilacs are among the plants most commonly etherized, though nearly all shrubs, as well as bulbs, respond readily to the influence of etherization. Etherization hastens the blooming period of lilacs and most plants two or three weeks or more.

New Hybrid Fruits.—The first hybrid fruits resulting from crossing the hardy *Citrus trifoliata* with sweet oranges, for the purpose of securing an orange of good quality that could be grown much farther north than any of the present commercial varieties, were obtained during the past year. Such fruits are reported from the Department of Agriculture at Washington, from Texas, and from Louisiana. The fruits obtained are reported to be of fair quality, about the size of a tangerine, nearly seedless, and in the case of the report from Louisiana, to withstand a zero temperature. The fruit obtained in the case of the experiments of the Department of Agriculture more nearly resembles the lemon than the orange. It promises to be of much usefulness for culinary purposes and for the production of a beverage. Dr. Webber, of the Department of Agriculture, also describes a fruit obtained by crossing a pomelo and a tangerine. It is intermediate in size between the two, can be readily peeled like the tangerine, and separates into segments. As a breakfast fruit it is believed to be very desirable, having an acid flavor, but being much less bitter than the ordinary pomelo. This fruit is being propagated for distribution as a valuable new creation under the class name of the "tangelo."

The subject of plant hybridization has had a remarkable impetus during the past year from the rediscovery and confirmation by several European and American investigators of certain laws of hybridization deduced by Gregor Mendel, at Brünn, Austria, from experiments made with peas in 1865. Mendel's paper attracted little attention when published, owing to the greater interest of scientists in the theory of evolution proposed about that time by Darwin. Stated briefly the law as deduced from peas is that in the second and later generations of a hybrid all possible combinations of the parent characters appear and in definite proportions of the individual plants. The theory propounded and proved to explain this phenomenon is that in respect to certain pairs of differentiating characters the germ cells of a hybrid, or crossbred, are pure and carry and transmit one character only, not both. The dominant feature of the International Plant Hybridization Congress held in New York, September 30 to October 2, was the discussion of Mendel's law and its bearing on future work in plant and animal breeding. As a working hypothesis the theories of Mendel promise to be the most fruitful of results of anything thus far proposed since Darwin's theory of evolution.

School Gardens.—The school garden movement, long a feature of many European countries, has made rapid progress in the United States during the past year. The work is being encouraged by municipal and civic clubs, college settlements, factories, and many city and village schools. In the schools it is an important supplement to the nature study movement. A model school garden, an acre in extent and under the direction of the United States Department of Agriculture, is announced as a feature of the forthcoming St. Louis Exposition. The development and functions of school gardens, with a bibliography of the literature on the subject, is given in the *Outlook* (1902, No. 14) by D. J. Crosby.

Literature.—In horticultural literature the chief event of the year has been the appearance of the fourth volume of Bailey's *Cyclopedia of American Horticulture*, thus completing this monumental work and classic in American horticulture. The

year has also seen the complete revision under the general editorship of William Watson of the entire six volumes of Thompson's *Gardener's Assistant*, the well-known English cyclopedia of horticulture. The German illustrated *Cyclopedia of Garden Culture*, by T. Rümpler has also undergone an extensive revision during the year. The series of handbooks of practical gardening, issued by John Lane, under the general editorship of H. Roberts, has now reached fourteen numbers, including books on the following subjects: The Book of Asparagus, Greenhouse, Grape, Old-Fashioned Flowers, Bulbs, Apple, Vegetables, Orchids, Strawberry, Climbing Plants, Pears and Plums, Herbs, Wild Garden, and Bees. All of these subjects are treated from the standpoint of English conditions. The art of gardening as developed in America has been brought out in a book by G. Lowell on American gardens, a quarto publication richly illustrated. The commercial side of horticulture has been contributed to by J. Pacrette in a 200-page octavo volume, entitled *The Art of Canning and Preserving as an Industry*. The *Australian Gardener*, a monthly journal of sixteen to eighteen pages, and devoted mainly to floriculture, issued its first number in July. *Meehan's Monthly*, established in 1891 and devoted to general gardening and wild flowers, ended its existence with the December issue. *American Horticulture Manual*, part i., by J. L. Budd.

HOSPITALS. The new lying-in hospital in New York City built by J. P. Morgan, was opened early in the year 1902. The building, which is at Seventeenth Street and Second Avenue, is eight stories high, and is built with every modern convenience for obstetrical work. A bill has been introduced authorizing the construction of a smallpox hospital in the Borough of the Bronx, New York City. The building is to cost $300,000 and the site $200,000, and the hospital is to be devoted to cases of infectious and contagious disease. St. Vincent's Hospital, New York City, is to have a splendidly equipped sanatorium near Suffern, N. Y., for convalescents. The building will accommodate at least thirty private patients, and will be in charge of the Sisters of St. Vincent's Hospital. The new building of the New York Ophthalmic and Oral Institute will shortly be erected at West Sixty-fourth Street and Central Park. The trustees of Bellevue and allied hospitals in view of the unsanitary and antiquated condition of these institutions, have urged Mayor Low to provide a new hospital of modern design without delay, and the mayor has virtually pledged his administration to increase the number of hospitals for the treatment of contagious diseases, and to provide for this purpose a fund of $2,000,000 to be expended in the next three years. Only 9½ per cent. of cases of infectious diseases in New York are now treated in hospitals. It has been decided to construct an emergency hospital at Annapolis, the number of accident cases which have occurred lately making this step necessary. An isolation building has been erected on the grounds of the Noble Hospital at Westfield, Mass., with accommodations for ten patients. A bill for the establishment of a State commission to consider the establishment of a hospital for tuberculous patients has been introduced in the Maryland senate. The Pennsylvania legislature will be asked to pass a bill appropriating $300,000 for the enlargement and improvement of the White Haven Consumption Sanatorium for the free treatment of poor consumptives. If this appropriation is passed, Pennsylvania will have given more than any State in the Union for the care of the consumptive poor. It is proposed to establish other sanatoriums like that at White Haven throughout the State. The method of treatment is outdoor life with forced feeding. The State Tuberculosis Commission of New Jersey decided to purchase 400 acres of land at Glen Gardner as the site for the New Jersey Hospital for Consumptives. The plans for a new county insane hospital at Weyanwega, W. Va., have been approved and contracts given for the erection of a building to accommodate 125 patients. Philadelphia is to have a new almshouse and insane hospital. After a good deal of debate it has been decided to utilize the House of Correction property at Holmesburg, which consists of over 150 acres of high land, easily accessible and already owned by the city. About $300,000 will be devoted to the buildings. The site recently chosen for the Municipal Hospital is about five miles southwest of this property. The Walker Hospital for Europeans, at Simla (India), was opened for the reception of patients on May 1, 1902. In 1902 Mr. John Masterson Burke, of New York, gave $4,000,000 for founding a home for convalescents in that city.

HOTT, James William, bishop of the United Brethren Church, died at Dayton, O., January 9, 1902. He was born near Winchester, Va., November 15, 1844, entered the ministry in 1861, and was ordained in 1864. He became editor of the *Religious Telescope* in 1877, and was chosen a bishop in 1889, and re-elected three times. He traveled extensively in foreign lands, and was the author of *Journeyings in the Old World* (1882), and of *Sacred Hours with Young Christians* (1892), besides numerous doctrinal and other papers for periodicals. His *Life*, by the Rev. Marion R. Drury, D.D., was published in 1902.

HOUSING PROBLEM. The most serious problem confronting the social reformer of to-day is the question of supplying habitable quarters for the poor at rates within their means and still paying dividends on the investment. Each city has its own problem which must be solved in a way determined by the topography of the vicinity and the social structure of the population. More attention was given to the housing question in 1902 in the United States than ever before. The New York State Tenement House Law was put into operation with good results. Efforts were made in nearly all large cities to prevent further overcrowding and to relieve the evils existing. An excellent account of the legal regulations of tenement houses and the particular problems to be met in the principal cities of the United States is given in the *Annals* of the American Academy of Political and Social Science for July, 1902. Hon. Robert W. de Forest treats of tenement house regulations, Miss Jane Addams gives Chicago conditions, the *Report* of the Octavia Hill Association treats Philadelphia, Mr. Robert Treat Paine writes of Boston, while the housing problem in Jersey City is stated by Miss Mary B. Sayles, fellow of the College Settlements Association. A brief summary of these papers will give an idea of the progress toward social betterment in American cities.

Tenement House Regulations.—Legally a tenement house is a dwelling inhabited by three, or, in some cities, by four families. The necessity for regulating the construction of such dwellings has led to a considerable body of legislation. Protection from fire is almost universal. In all cities of the United States, the kind of materials and the mode of structure are prescribed by law. In New York, Philadelphia, San Francisco, Jersey City, Providence, Syracuse, and Nashville, all tenements must have fire escapes. In St. Louis, Baltimore, Louisville, Minneapolis, St. Paul, Denver, Toledo, and Columbus, O., all tenements above two stories, and in Chicago, Cleveland, and Cincinnati, all above three stories must have fire escapes. In many cities, tenements above a certain height must be fireproof throughout. In Philadelphia the limit is four stories, in Washington five stories, in New York, Buffalo, Louisville, Minneapolis, and Denver six stories, and in Boston 65 feet. Light and ventilation are provided for by ordinances regulating the size of yards and air shafts. Buffalo, Boston, Philadelphia, and New York are foremost in such legislation. Water supply and water-closet accommodations are regulated in most of the larger cities, as is also the occupancy of cellar dwellings. Building regulations have a direct effect upon the cost of rents as well as the conditions of living. Sometimes laws cannot be enforced, because if they were thousands would be deprived of all shelter, and the worst habitation is better than none at all.

In Chicago conditions are unique. In the poorer districts the tenements are often inhabited by the owner. Especially is this true of the Bohemian quarter and to a lesser extent of the Italian quarter. This makes the question of improving conditions all the more difficult, as the opposition of both landlord and tenant must be reckoned with. Overcrowding is almost incredible. If the average tenement house density prevailing in the Bohemian, Italian, Russian-Jew, and Polish quarters extended over the 187 square miles of Chicago, the city would have a population of 23,000,000. On an area of one-seventh of an acre 130 people were living when the committee of the Homes Association made its report in 1901. At this rate all the people of the Western Hemisphere could be housed in Chicago. More than a hundred "double-decker" tenements were found by the committee, and many more escaped this classification only by a technicality in the definition adopted. Conditions in the single houses and apartments were quite as bad, often worse than in the "double-deckers" of evil name. Rents in the poorer districts are very low. The problem of supplying decent accommodations at rentals within the reach of these people is most difficult. The inducements of better surroundings have no weight with them, if betterment involves an increase in rent, and it is impossible to better their conditions without increasing rents.

Philadelphia is commonly supposed to have no housing problem. The report of the Octavia Hill Association for 1901, revealed serious evils existing in the city and showed the necessity of immediate and vigorous measures to prevent further growth of overcrowding. This association is a stock company organized to improve the poorer sections of Philadelphia by methods similar to those of Miss Octavia Hill in London. Its aim is to improve old houses and small properties rather than to build new dwellings. It employs women rent collectors, both salaried and volunteer. Its capital stock is $50,000, paying 4 to 4½ per cent. dividends. It has demonstrated the practicability of remodeling the houses in the poorer districts into decent dwellings and of still making reasonable profits. It now has under its care seventy-seven houses, sixty-five of which are small houses for single families, and twelve are tenements of eleven or twelve rooms each. The aim is to improve the neighborhood gradually by showing the people better ways of living. The population of Boston has increased from 1871 to 1901 by 25.3 per cent., while the number of dwelling houses increased only 22.8 per cent. Four per cent. of the dwellings are

vacant, and it is likely that conditions have not improved. Increased facilities of transport and the cooperative banks have greatly helped to build up suburban homes and to relieve the pressure of population in the centres. The Boston Cooperative Building Company and the Workingmen's Building Association are building good houses at reasonable cost, and are making fair profits. These building associations cannot, however, meet the needs of the sections most in need of better houses. The necessity for relief from present evils is told by the high death-rate in the slums—more than double the rate in the better sections of the city, in some cases. Jersey City is another city which is supposed to have no housing problem, but the special investigations made by Miss Sayles brought out the fact that much overcrowding exists in certain quarters, especially among the foreign born. The worst examples of overcrowding to be found in the United States, exist in certain areas in New York City. The density of population in the Polish quarter in Chicago is three times that of the most crowded portions of Tokio or Calcutta; but Chicago's densest quarters are not so overcrowded as the worst sections of New York. Although the density per acre is greater in New York, the density per room is not greater than in other cities named. The problem of relieving the congestion is immensely greater, however, not only because of the greater numbers to provide for, but because of the difficulties of providing transportation accommodations. The topography is such that most of the travel must be north and south. The distance to the suburbs is correspondingly greater and rents higher. The underground railway, the new bridges over the East River, the tunnels to Brooklyn and the Pennsylvania Railroad tunnel, it is hoped, will enable many thousands who are now compelled to reside on Manhattan Island to live in Long Island, New Jersey, or the Bronx. The new tenement house law, which went into effect the latter part of 1901, has already improved conditions in the worst sections. A strong effort was made to overthrow the law in the legislature in 1902, but failed. A new attempt is now on foot to repeal portions of the law compelling the abolition of sinks and regulating dimensions of light and air space.

In England the housing question has been under consideration longer than in America, and greater advancement has been made in many ways. Greater powers are conferred upon the local and municipal authorities to regulate building, to condemn unsanitary buildings, and to erect municipal tenements. In spite of all efforts the situation does not improve. The wiping out of one slum simply means further overcrowding in other quarters. In West Ham, one of the boroughs of London, the Socialistic party got control and attempted to solve the housing problem. The London *Times* regards the result as a clear failure. Wages were fixed 20 per cent. above the union scale and the eight-hour day was made universal. Twenty-seven municipal dwellings were built for workmen and leased at an annual loss of £4 per house. Expenditures increased from £13,000 to £30,000 a year, and the rates rose from 9s. to 10s. 6d., the proportion levied by the borough council rising from 2s. 7d. in 1890 to 4s. 8½d. in 1901. Rents rose 12½ to 20 per cent. Finally the Socialistic majority advocated the expenditure of nearly £3,000,000 on public works, £1,675,000 to go for municipal dwellings. This led to the defeat of their candidate in 1902, and this attempt to eliminate the slums by paying more than the market wages and supplying better houses at less than cost, was abandoned. The Socialists claim that great good was accomplished, the worst slums were eradicated and great improvements justified the increased expenditures. It is doubtful if any permanent benefit was accomplished. A more hopeful remedy for existing evils was proposed by Mr. Ebenezer Howard in his *Garden Cities of To-morrow*. He advocates the purchase of cheap land in rural communities by a corporation, and the transplanting of industries to the new site, which will be built upon a definite plan that will prevent overcrowding and the other evils of tenement life in the great cities. This plan is being partially followed out at Bournville, a suburb of Birmingham, by Mr. George Cadbury. The conference of the Garden City's Association was held there in 1902, and the practical working of the plan was demonstrated. A movement peculiar to England is the effort to improve housing conditions of rural districts. Often it is found that overcrowding and most unwholesome conditions exist among the cottagers and tenantry in the country. In several cases, landlords were induced to provide decent houses for their tenants, and the movement is spreading.

HUDSON RIVER TUNNELS. See TUNNELS.

HUGHES, HUGH PRICE, an English clergyman, died November 17, 1902, in London. He was born in 1847 at Carmarthen, and studied at University College, London, and Wesleyan Theological Seminary at Richmond. He had decided early in life to become a Methodist preacher, and in 1869 received his first pastorate, at Dover. He remained in every pastorate to which he was appointed for the three years allowed by his denomination, and became superintendent of the West London Mission when it was founded in 1887. The three-year rule was suspended in the

case of the mission, and he remained with it until his death. Large congregations were regularly attracted by his preaching, and from the first the mission grew rapidly in size and influence. A nursing sisterhood, thrift societies, poor relief operations, and kindred agencies were added to the mission. He became identified with the social purity movement and his vigorous attacks on all phases of corruption, including various statutes as well as officials of the city, had a far-reaching effect. He was uncompromising in his theological views, but gradually became less and less prone to controversy in such matters. Under his editorship the *Methodist Times* became the most powerful paper of the Wesleyan Church. In 1898 he was elected president of the Wesleyan Conference, and upon the movement for federation among the Non-conformist churches, became president of the National Council of Evangelical Free Churches. He published *Social Christianity; Ethical Christianity; Essential Christianity; The Atheist Shoemaker;* and *The Philanthropy of God.* From the similarity of methods employed in his efforts toward social improvement, he was often referred to in the American press as "the Dr. Parkhurst of London."

HUMBERT CASE. The year 1902 added one more *cause célèbre* to the long list that has given to the history of justice in France almost the character of a series of romances. Briefly stated, the facts of the case appear to be as follows: Some twenty years ago M. Frédéric Humbert, the son of Gustave Humbert, minister of justice in the cabinet of M. de Freycinet in 1882, appeared in Paris with his wife, who had been Thérèse D'Aurignac, the daughter of a lace merchant of Toulouse. The official position of the elder Humbert gave them entrance to society and they were enabled to keep up a city house with considerable magnificence, in which they entertained lavishly. The funds by which this establishment was maintained consisted of loans obtained from various sources, on practically no security whatever, the creditors, if inclined to question the Humberts' solvency, being satisfied by rather indefinite stories of an expected inheritance that at different times was said to consist of a large estate near Tarbes, or the property of a fabulously wealthy Portuguese nobleman, who had been a "friend" of Mme. Humbert's mother. There were some who doubted the existence of these fortunes, but if they happened to be creditors they were always appeased by the payment of a part or the whole of their loan from funds borrowed for the purpose from others; if they happened to be disinterested persons their doubts were generally smothered by unusual social attentions from the Humberts. In 1885 the hope of realizing on the estate at Tarbes and the Portuguese millions was evidently abandoned, for from that time on Mme. Humbert's "security" underwent a new and very remarkable change. Thereafter credulous lenders were told a story something like this: Under the last will and testament of a certain Robert Henry Crawford, a wealthy American, Mme. Humbert explained, his entire fortune of 100,000,000 francs had been left her as a mark of his gratitude for her having once nursed him in a serious illness. In order that this legendary fortune should be accepted as the equivalent of negotiable securities Mme. Humbert devised an ingenious scheme whereby a legal certification of the Crawford millions could be obtained and at the same time a demand to show the actual securities might be averted. This was no less than the invention of a second will, which left the entire fortune to be equally divided between Crawford's two nephews and Marie D'Aurignac, a younger sister of Mme. Humbert, providing that person with only a small annuity. Pending the settlement of the inheritance, Mme. Humbert produced an agreement, purporting to be signed by the Crawfords, providing that the 100,000,000 francs in securities should be sealed up and deposited in a safe to be left in Mme. Humbert's keeping, but with the stipulation that she should not open the safe under penalty of forfeiting all claim to the estate. This scheme of tying up the fictitious inheritance by means of perfectly legal proceedings was a positive stroke of genius. Under English or American legal procedure the deception could not have been possible for a year; in France for a period of twenty years during which the "settlement" was pending the Humberts lived in luxury, maintained country châteaux and city houses, a yacht, and a box at the opera, gave largely to charitable institutions and continued to be received in the best official society. Some few creditors who insisted on repayment were actually paid, but most of them were satisfied with a sight of the famous agreement and other legal documents relating to the settlement, or with a view of the outside of the little safe in which the Crawford millions were said to repose. The Humberts' borrowings ran from 250,000 to 7,000,000 francs, the total probably reaching at least 60,000,000 or 70,000,000 francs. During all these years, although many seem to have questioned the truth of the story or actually declared it to be a colossal fraud, the Humberts remained unmolested, and there have been persistent rumors that persons in high authority were shielding them. The climax came in May, 1902, when, as a result of one of their numerous legal difficulties, the courts ordered the mysterious safe opened. Unable longer to keep up the deception, the Humberts disappeared. The safe was opened the next day

and found to contain only some paste jewelry and worthless papers. The inability or disinclination of the government to find the fugitives renewed the rumors of official collusion, which their discovery, late in December in Madrid, where they had lived quietly since June, did not allay. With no more ado they were taken back to Paris to await trial. The feeling that the government had acted in a lax manner manifested itself at length in the Chamber of Deputies, where, however, an interpellation resulted in a vote of confidence in the ministry by a large majority.

HUMPHREYS, Alexander Crombie, an American engineer, who in the autumn of 1902 succeeded the late Henry Morton as president of the Stevens Institute of Technology, Hoboken, N. J., was born in Edinburgh, Scotland, March 30, 1851, and was brought by his parents to the United States in 1859. When prevented by age restrictions from entering the United States Naval Academy, to which he had been appointed at the age of fourteen, he began work in a Boston insurance office; and after six years' service in the office of a New York firm he became secretary and then superintendent of a gas company in New Jersey. In 1877 he entered Stevens Institute as a special student, and despite the duties of his regular business life graduated with his class four years later. He then engaged in the construction of oil-gas works, as chief engineer of the Pintsch Lighting Company, and in 1885 was appointed general superintendent of the United Gas Improvement Company, a position which he held until his resignation in 1894, when he established in New York the firm of Humphreys and Glasgow. His influence on the system of management in gas-lighting companies has been very marked, and he has made experiments of great value in the manufacture of water gas.

HUNGARY. See Austria-Hungary.

HYATT, Alpheus, an American zoologist, died January 15, 1902, at Cambridge, Mass. He was born at Washington, D. C., April 5, 1838, and was a student at the Maryland Military Academy and Yale University, leaving the latter institution after his freshman year to travel in Europe. On his return in 1858 he entered the Lawrence Scientific School of Harvard, where he studied zoology under Louis Agassiz. Graduating in 1862, he served throughout the Civil War in the Forty-seventh Massachusetts Volunteers, and reached the rank of captain. After studying in Europe he returned to America, and in 1867 became a curator in the Essex Institute of Salem, Mass. He was one of the founders of the Peabody Academy of Sciences in Salem and also of the *American Naturalist.* As one of the Salem school of zoologists Hyatt's reputation soon spread, and in 1870 he was elected custodian, and in 1881 curator, of the Boston Society of Natural History. A professorship of zoology and paleontology at the Massachusetts Institute of Technology, the oversight of the Museum of Comparative Zoology in Cambridge, and work for the United States Geological Survey comprised only a part of his work, and his success as a teacher and promoter of investigation was most marked. He founded a marine biological station at Annisquam, Mass., for his students, and actively participated in establishing the Teachers' School of Science, which was held in the rooms of the Boston Society of Natural History. One of the founders of the American Society of Naturalists, he was its first president and in 1875 was elected a member of the National Academy of Sciences. He was LL.D. of Brown University (1898), and a member of many scientific societies both in America and in Europe.

Professor Hyatt's researches dealt mainly with invertebrate animals, both fossil and recent, and he was a recognized authority in the group of tetrabranchiate cephalopods known as ammonites, the evolution of which he has discussed most minutely. He published many papers on fossils and evolution, while his *Commercial and Other Sponges* (1879), was considered one of his best pieces of work. All of his scientific investigation was marked by a thoroughness of observation and study, and he is known as the founder of a distinct school of zoological research in which exact methods are demanded. Hyatt's more important publications include: *Observations on Fresh-water Polyzoa* (1866-68), *Fossil Cephalopods of the Museum of Comparative Zoology* (1872), *Revision of the North American Porifera* (1875-77), *The Genesis of the Tertiary Species of Planorbis at Steinheim* (1880), *Genera of Fossil Cephalopods* (1883-84), *Larval Theory of the Origin of Cellular Tissue* (1884-85), *Genesis of the Arietidæ* (1889), *Bioplastology and the Related Branches of Biologic Research* (1893), *Phylogeny of an Acquired Characteristic* (1894), *Cephalopoda* (1900).

HYBRIDIZATION. See Horticulture (paragraph New Hybrid Fruits).

HYDROPHOBIA. See Rabies.

HYGIENE. A New York sanitary engineer found as much as 26.2 parts of carbonic acid gas per 10,000 volumes of air in the trolley cars of that city. This is to some extent due to insufficient heating of the cars, the windows in winter being of necessity tightly shut. The cocoanut-husk mats on the floors of the cars have

been examined, and fibres 1½ inches long found to contain from 3,000,000 to 4,000,000 bacteria. As bad as these findings are, they compare favorably with conditions on many railroads. In the Mont Cenis Tunnel the air contains 107 parts of carbonic acid gas; in cars in the Mersey Tunnel in England 26.4 parts; in an electric car in the new Boston subway 24.97 parts; and in the Metropolitan Railway Tunnel in London 89.4 parts per 10,000 volumes. The health commissioner of New York City, from the examination of 55,000 children in 36 schools found no less than 12 per cent. afflicted with contagious diseases of the eye, principally trachoma. A routine examination to prevent the attendance of such children is to be regularly made in the future. The unwisdom of excluding all children suffering from trachoma has been pointed out by numerous physicians, for, since there are no proper hospital facilities for the treatment of such cases, and since the dispensary treatment lasts for months, the result of the regulation will be that large numbers of children will be kept out of school. The International Sanitary Congress was held at Havana, in February, 1902, Major Gorgas, U. S. A., presiding at the opening session. The opening address was made by the president of the congress, Dr. Santos-Fernandez of Havana. Many important subjects were considered, embracing sanitation, hygiene, malaria, leprosy, yellow fever, and mosquitoes, at the Sanitary Congress held in Manchester, England; among other important matters the dust problem was considered. Sir J. Crichton Browne pointed out that notwithstanding the successful crusades against it, dust was responsible for an appalling amount of suffering, disablement and death. A detailed examination of conditions in the twenty-two principal dusty trades showed that it was the dust that was responsible for their unhealthfulness. The alarming mortality among miners was due to ganister dust (brought to light by Drs. Birmingham and Shaw), which kills, not by inducing phthisis in the ordinary sense of the word, but by setting up widespread fibrous changes in the lungs (fibroid phthisis), to which tuberculous infection was secondary. The thirteenth annual meeting of the American Public Health Association was held at New Orleans, in December, 1902. Reports of the committees on the disposal of refuse materials, and on animal diseases and animal food, were presented. The former stated that the disposal of city refuse had not materially improved during 1902. Many of the largest cities in America had reduction plants for the extraction of the grease from garbage. Feeding kitchen garbage to swine as a method of disposal was advocated by a prominent health officer, but opposed by the majority of sanitarians. Many other papers and reports were read, among the most important of which were those on vital statistics, public health legislation, disinfection, leper homes, and yellow fever. See GAS, ILLUMINATING AND FUEL; TUBERCULOSIS; YELLOW FEVER.

ICE HOCKEY. In the Intercollegiate Hockey League, composed of Yale, Harvard, Princeton, Columbia, and Brown, the championship for 1902 was won by Yale with 4 victories and no defeats. Harvard was second with 3 victories and 1 defeat (Yale). Princeton defeated Columbia and Brown and lost to Yale and Harvard. Columbia won from Brown and lost to all the others, and Brown lost all of her games. An extra series of two games was played between Yale and Harvard, both contests being won by Yale. The championship of the Amateur Hockey League of New York City was won by the Crescent Athletic Club of Brooklyn, which defeated the New York Athletic Club in an extra game to decide a tie. The teams finished as follows: Crescent Athletic Club, won 6, lost 2; New York Athletic Club, won 6, lost 2; Hockey Club of New York, won 5, lost 3; St. Nicholas Skating Club, won 3, lost 5; Brooklyn Skating Club, won none, lost 8. In the Amateur Hockey League of Canada, the Montreal team won the championship with 6 victories and 2 defeats. The other teams finished as follows: Ottawas, won 5, lost 3; Victorias, won 4, lost 2; Quebecs, won 3, lost 4; Shamrocks, won 1, lost 7.

ICELAND, an island lying about 250 miles east of southern Greenland, constitutes a Danish colony. Its area is 39,756 square miles, and its population (1901) 78,489. The capital is Reykjavik. The head of the administration is a minister appointed by the Danish crown, while local executive authority is vested in a governor, and the legislative power is an assembly, the Althing. Imports and exports in 1899 were valued at 2,403,000 kroner and 2,660,000 kroner, respectively; in 1900, 2,386,000 and 2,993,000, respectively. The krone is worth 26.8 cents. The leading exports include wool, dried fish, mutton, ponies, and sheep. Trade is chiefly with Denmark. Economic conditions in Iceland are improving. Commerce, which used to be carried on chiefly through barter, now conforms more nearly to modern methods. It appeared in 1902 that Iceland would benefit in the fact that the fishing area of the North Atlantic is moving northward, and the Danish government undertook a piscatorial survey in waters near Iceland and the Faroe Islands. In Iceland salmon fisheries were being exploited in 1902 and plans were made for the establishment of large canning factories along the rivers.

On January 10, 1902, a royal decree stated the willingness of the Danish govern-

ment to conclude an arrangement whereby the minister for Iceland should leave Copenhagen and reside at Reykjavik, and should use the Icelandic language. The provisions of this decree, which was well received by the Icelanders, subsequently became law, and it seemed that the long existing constitutional strife between the colony and the mother country was at an end.

IDAHO, a northwestern State of the United States, has an area of 84,290 square miles. The capital is Boise City. Idaho was organized as a Territory March 3, 1863, and admitted to the Union July 3, 1890. The population in 1900 was 161,772, while in June, 1902, as estimated by the government actuary, it was 177,000. The largest city in 1900 was Boise City, with a population of 5957.

Finance.—The report of the treasurer for the biennial period ending January 1, 1903, shows that the balance on January 1, 1901, was $130,980. The total receipts during the term were $1,889,066.40, and the disbursements $1,302,291.83, leaving a balance on January 1, 1903, of $717,755.34. The largest sources of revenue were: From the general fund, $609,562.36; general school fund, $204,869.73; common school fund, $88,766.79; and bonds amounting to $102,000 face value, issued at a premium to meet the deficiency of 1901, $105,526.32. The bonded indebtedness of Idaho on January 1, 1901, was $443,500. There were redeemed, during the term, bonds amounting to $90,000, and there were issued bonds amounting to $198,000, of which $102,000 were for funding the deficiency in 1901, making a net bonded indebtedness on January 1, 1903, of $551,500. Idaho is one of the few States that do not have a State banking law. On account of the rapidly increasing commercial interests of the State, it was recommended by the State officials that a banking law be passed similar to that of other States and requiring State supervision and examination of all State banks. Another recommendation was that an adequate and equitable system of taxation for mining property be passed. This was deemed especially important, as the mining industry stood among the first in the State as a producer of wealth.

Agriculture and Industries.—All crops in 1902 were above average, and all the principal ones showed a considerable increase in acreage. There was as usual an excellent crop of hay in the valleys in the northern part of the State, the production being 955,676 tons, valued at $5,256,218. The Twelfth Census placed the acreage of wheat for 1899 at 266,305. According to the statistics of the Department of Agriculture, this had increased to 273,080 acres in 1902 and promised a further increase in 1903. The total wheat production in 1902 was 6,021,946 bushels, slightly more than half being spring wheat; the value of the crop was placed at $4,215,362. The acreage of oats was 81,064 acres in 1902, as against 64,739 acres (according to the census) in 1899. The yield was 3,412,794 bushels, valued at $1,638,-141. Barley increased in acreage from 32,798 acres to 37,731 acres. The 1902 crop, according to the *Crop Reporter,* was 50 per cent. above the average, yielding 1,746,-945 bushels, valued at $925,881. Flaxseed produced in 1902 was valued at $307,878, and corn $78,744. The larger part of these crops was raised by the aid of irrigation. The census returns for 1899 give the total crop area as 953,545 acres, of which 508,183 acres were irrigated. The construction of the systems then in use cost $4,168,252, and the value of the irrigated crops for 1899 was $5,440,962.

Abundant hay and grain favored a large growth in stock-raising. On December 31, 1902, Idaho had 4,541,815 sheep, valued at $11,612,513—a number exceeded only by Montana, Wyoming, and New Mexico. Montana and Wyoming alone had a larger wool-clip in 1902, Idaho's clip being 21,639,387 pounds—more than 5 per cent. increase over 1901. Idaho had in 1902 416,171 head of cattle, valued at $9,814,483; 148,279 horses, valued at $4,988,597; and 119,611 swine, valued at $901,867. The State horticultural inspector reported that Idaho was making great progress in fruit growing. In 1902 fruit products exceeded a million dollars in value.

The Cœur d'Alene mining district in Idaho showed an increase in production for 1902, notwithstanding the limitations on output imposed by the action of the American Smelting and Refining Company. Reports showed an output of 75,200 short tons of lead and 3,569,263 ounces of silver. In 1901 the full output of the district was 68,953 short tons of lead and 4,282,388 ounces of silver. Owing to the restriction of product but little new work was done beyond the ordinary prospecting and development necessary to keep the mills supplied. An important feature of the mining development in Idaho, as elsewhere, during 1902 was the substitution of electric power generated by water-motors for pumping and the hoisting and hauling of ores from the mines. Idaho has had no coal mines, but in 1902 coal was discovered and mines opened in several counties. See COPPER and GOLD.

Conventions and Platforms.—The Republican State convention was held at Boise August 21, 1902. Protection and the trusts were the two principal planks in the platform. It favored such a revision of the tariff, "without unreasonable delay," as would "place upon the free list every article and product controlled by any monopoly, and such other articles and products as are beyond the need of protection." The

platform suggested an amendment to the Constitution to enable Congress to "effectually regulate and suppress all trusts and injurious combinations for aggregations of capital."

The Democratic State convention was held at Boise City, September 5, 1902. The usual declarations embodying the principles of the Kansas City platform were repeated. Protests were made against "imperialism" and the carrying on of a colonial policy. Trusts and protective tariffs were condemned. Legislation was advocated to prevent "the abridgment, by the abuse of a writ of injunction, of the right of free speech, the peaceable assemblage of all persons to peaceably discuss any and all questions, the right to use persuasion to convert others to their views, and the depriving of persons of trial by jury." Demand was made for the government ownership of railway, telegraph, and telephone lines. The election of United States senators by direct vote of the people was strongly advocated, as were also the adoption of the initiative and referendum and legislation giving married women equal property rights with men.

Elections.—At the regular biennial State elections, held November 4, 1902, a full Republican State ticket was elected. The vote for governor was, Morrison (Rep.), 31,874; Hunt (Dem.), 26,021; giving Morrison 5853 plurality. The legislature for 1903 will consist of 6 Fusionists and 15 Republicans in the senate, and 11 Fusionists and 35 Republicans in the house.

Other Events.—The lands of the ceded Fort Hall reservation were thrown open to settlement June 17, 1902, and 1300 persons proceeded to take up homesteads on the lands. There was consummated at Salt Lake City on November 29 a deal through which 271,000 acres along the Snake River in Idaho are to be redeemed by irrigation. The scheme of the company organized to accomplish this includes the building of two great canals, the development of the power at Shoshone Falls, and the building of an electric railroad to connect with the Oregon Shore Line at Shoshone. The principal shareholder is F. H. Buhl, of Sharon, Pa., and the capital invested is stated at $1,500,000.

State Officers.—For 1902: Governor, Frank W. Hunt (Dem.); lieutenant-governor, Thomas F. Terrell (Dem.); secretary of state, C. J. Bassett (Dem.); treasurer, John J. Plumer (Dem.); auditor, Egbert W. Jones (Pop.); attorney-general, Frank Martin (Dem.); superintendent of education, Permeal French (Dem.); inspector of mines, Martin H. Jacobs (Pop.) For 1903: Governor, John T. Morrison (elected for two years, term ending January, 1905); lieutenant-governor, James M. Stevens; secretary of state, Wilmot H. Gibson; treasurer, Henry N. Coffin; auditor, Theo. Turner; attorney-general, John A. Bagley; superintendent of education, May L. Scott; inspector of mines, Robert Bell—all Republicans.

Supreme Court: Chief-Justice, Ralph P. Quarles (Dem.); associate justices, Isaac N. Sullivan (Rep.); Charles O. Stockbridge (Dem.).

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

ILLINOIS, a central State of the United States, has an area of 56,650 square miles. The capital is Springfield. Illinois was organized as a Territory March 1, 1809, and admitted as a State December 3, 1818. The population in 1900 was 4,821,550, while in June, 1902, as estimated by the government actuary, it was 5,033,000. The populations of the largest cities in 1900 were: Chicago, second largest city in the United States, 1,698,575, an increase of 598,725 since 1890; Peoria, 56,100; Quincy, 36,252; and Springfield, 34,159.

Finance.—The funds of the State treasury of Illinois on October 1, 1900, amounted to $2,617,955.88. The total receipts during the biennial period from October 1, 1900, to October 1, 1902, were $16,382,020.34, and the disbursements $15,621,652.19, leaving a balance on September 30, 1902, of $3,378,324.03. Of the receipts for the term $12,151,242.17 were from the revenue fund; $2,083,619.02 from the school fund; $2,136,552.57 from the local bond fund; and $10,606.58 from the State game protection fund. Of the general revenue fund, $2,881,902.56 were derived from taxes for 1900; $3,387,414.21 from the tax of 1901; $1,695,773.85 from the 7 per cent. tax of the gross receipts of the Illinois Central; $532,877.90 from fees received by the secretary of State; $604,593.86 from insurance taxes, and $1,005,129.29 from the United States government on account of expenditures incurred during the Civil War. Of the State school revenues, $2,083,619.02 were on account of taxes of 1899, 1900, and 1901. At the end of the term the principal of the bonded debt of the State was $18,500, and this principal represented bonds called in and drawing no further interest.

Agriculture and Industries.—The year 1902 was one of unprecedented prosperity in all branches of industry in Illinois. Farm, mine, and factory reported both large production and high prices. In 1902, Illinois was the first State in the production and value of farm produce. In that year the total value of all farm crops of the State, according to the *Crop Reporter*, was $241,263,406—30 per cent. greater

than that of any other State and exceeding the value of the aggregate crops of the six New England States and the eleven States and Territories west of Kansas. In the production of corn and oats, the two principal crops, Illinois was equaled by no other State. The following table gives the acreage and production of the principal crops:

Crops.	Acres.	Bushels.	Value.
Corn	9,623,680	372,436,416	$ 134,077,110
Oats	4,070,303	153,450,423	42,966,118
Hay	2,747,369	4,121,054*	36,553,749
Wheat	1,821,337	32,601,932	19,235,140
Potatoes	146,295	17,262,810	7,250,380

* Tons.

The value of both barley and rye produced was $1,000,000. On December 31, 1902, Illinois was surpassed in total value of farm animals only by Iowa. The statistics given by the *Crop Reporter* were 1,077,188 horses, value $84,583,390; 107,699 mules, $9,934,795; 985,769 milch cows, $34,817,361; 1,700,716 other cattle, $45,054,861; 988,174 sheep, $3,792,909; 3,747,495 swine, $35,338,878.

Live-stock receipts at Chicago fell off greatly in 1902, though shipments of sheep increased. Freight receipts by water were greater at Chicago than at any other Lake port, amounting to 6,664,117 tons during the open season. Bank clearings for Chicago during the calendar years 1901 and 1902 were $7,756,372,450 and $8,394,872,346, respectively—a greater increase than was shown by any other city of the country.

Illinois easily maintained second place in the production of coal for 1902. There was unusual activity in mining, on account of the coal shortage due to the strike of the anthracite coal miners in Pennsylvania. No labor disturbances of any importance were experienced in the Illinois mines. The Illinois Bureau of Labor Statistics reported 332 shipping mines on July 1. The total output for the year ending June 30, 1902, was 30,021,300 short tons. (For production by calendar years, see Coal.) The total value of the output at the mines was $28,072,050. The mines were in active operation for an average of 210.2 days during the year. The quantity mined was, by machines, 6,647,087 tons; by hand, 23,374,214 tons. The total number of employees was 13,130. The average price paid for hand mining was $0.5635 per gross ton. Only Pennsylvania and Ohio exceeded Illinois in the manufacture of iron and steel. The production of pig-iron increased from 1,596,850 tons in 1901 to 1,730,220 tons in 1902. The volume of business in the iron and steel trades, both wholesale and retail, was 25 per cent. more in 1902 than in 1901, and the increase would have been even greater if the railroads could have handled all the freight offered. The activity in the manufacture of locomotives and railroad equipments was especially marked, because of the great demand for increased transport facilities.

Railroads.—The total length of steam railroads in the State of Illinois in 1901 was 17,351.2 miles, an increase of 571.92 miles over 1900. The mileage of surface and elevated electric lines reported for 1901 was 218.99 miles as against 149.68 miles for 1900. The capital of all steam railroad corporations doing business in the State on June 30, 1901, was $3,140,822,020, which is an increase of $72,122,991 over the previous year. The capital stock of elevated and surface lines on the same date was $88,595,450—an increase of $5,528,150 for the year, a very remarkable showing. The gross earnings from operation of all steam roads entering the State was, for the year ending June 30, 1901, $519,391,409, which was $36,847,830 more than the gross earnings for 1900. The total income of steam railroads operating in the State for 1901 was $114,677,806, an increase over the previous year of $6,871,654.

Taxation Reform.—The movement to increase the assessments of public utility corporations called forth loud complaints of confiscation from the corporations. The Union Traction Company, operating the street railways in the north and west divisions of Chicago, reported a deficit for the fiscal year ending June 30, 1902, as against a small surplus for 1901. President Roach in his report said: "The financial statement will show that prospective profits have been taxed into a deficit." In that, the receipts of the Union Traction Company from operation in the year 1901-02 were $7,825,000. The expenses for maintenance and operation were $4,570,000, leaving net earnings from operation for the year $3,254,000. The taxes paid, to which President Roach lays the blame for the deficit, amounted to $683,000. This would leave $2,500,000 applicable to payments on account of investment—a very handsome income on a reasonable capitalization. The alleged deficit appears as the result of a complicated system of accounting whereby dividends on the stock of constituent companies (which often amount to 30 or 35 per cent. per annum, on stock consisting mostly of water) are made to appear as fixed charges. The Union

Traction Company is capitalized at over $250,000 per mile of single track, while the City Railway Company, operating in the south division of the city with a much more valuable plant, has a capitalization of only $90,000 per mile.

Conventions and Platforms.—The Republican State convention was held at Springfield on May 8, 1902. In the platform, the sentiments expressed in the platform of 1900 were reaffirmed. The national and State administrations were heartily endorsed, and the candidacy of Representative Albert F. Hopkins for the Senate was approved. The platform referred in terms of great praise to the services of the army and navy, and urged liberal pensions to those discharged from service. Reciprocity with Cuba was recommended, the protective tariff was upheld, and trusts of all kinds were condemned unsparingly. State legislation to reduce the competition of convict with free labor was insisted upon.

The Democratic State convention was held at Springfield on June 17, 1902. In addition to the reaffirmation of the regular Democratic principles as set forth largely in the Kansas City platform, the convention expressed its deep regret at "the monstrous crime which removed from the nation its much loved and mourned President, William McKinley." The platform, in this connection, condemns all resorts to violence for redress of grievances, real or fancied. Concerning the administration policy in the Philippines, it was declared that "the American government should at once announce to the Filipinos that it is not our policy to permanently retain their country, but as soon as hostilities shall cease and a stable government be established the United States will recognize the independence of the Philippine Islands, as was done in the case of Cuba." The Republican tariff was denounced as "a prolific mother of trusts," and a thorough revision was demanded, together with the abolition of all special privileges. On the trust question, the platform declared that private monopolies destroyed competition and controlled the price of material, labor and finished product, "thereby robbing both producer and consumer." Rigid enforcement of the anti-trust laws and the supplementing of such laws were urged. The Ship Subsidy bill was denounced. Home rule for municipalities in the matter of granting franchises, and the taxing of corporations, also the application of civil service laws in State institutions were declared to be necessary. The abolition of convict labor was asked for.

The platform of the People's party reaffirmed the principles set forth in the Omaha platform, and, later, the Cincinnati platform. The Louisville convention was endorsed, "as a means of looking to the co-operation of all reforms." The main plank of the platform invites the "full, free co-operation of all who are opposed to monopoly of the natural sources of wealth and have the good of mankind and the perpetuity of the American government at heart. We favor the initiative and referendum and imperative mandate as the only means whereby the people can freely and fully express themselves on all political questions, and as the open door through which all other reforms can be brought about. We favor practical, clear-cut legislation in the interest of labor, including the following specific enactments: A law to prevent blacklisting of employees by corporations; a law to prohibit the use of convict labor in competition with free labor."

Strikes and Labor Movements.—The members of the Coal Teamsters' Union were ordered on January 28, 1902, not to deliver coal to any building using that fuel in cold weather only; those to whom coal was to be delivered must be such as use it all the year round. A number of firms were visited by representatives of the union and induced to give up the use of fuel-gas. The large packing houses of the Western cities having, in April, advanced the price of dressed meats, giving as excuses the shortage of suitable cattle owing to the drought of 1901, the increased consumption at home and increased exports, the retail dealers in Chicago also advanced prices. In May, the Chicago packers were called into court and were temporarily enjoined by Judge Grosscup, under the provisions of the anti-trust law. Later in the month the teamsters employed by these packers struck, demanding their share of the increased profits. This led to the use of department store wagons to haul meat, and when two drivers were discharged for refusing, all struck. Rioting accompanied the strike, and on June 2 there were conflicts between the police and the packing-house strikers. The governor and the State board of arbitration restored peace on June 5, 1902. The packers agreed to advance wages, but refused to recognize the Teamsters' Union. The strike of the Chicago freight handlers, which began on June 7, 1902, terminated in July. A threatened sympathetic strike by the teamsters was averted by the refusal of their union officers to sanction the strike. The freight handlers returned to work on the terms offered at the beginning of the controversy by the railroad managers. The chief dispute was over the pay of truckers, the union demanding 18 cents an hour in the first instance, then receding to 17½ cents an hour. The railroad managers declined to grant more than 17 cents, and carried their point. On November 7, 3500 employees of the Union

Traction Company of Chicago were awarded 10 per cent. increase in their wages by arbitrators, the same to continue till May, 1904.

Legal Decisions.—Judge Tuley, of Chicago, early in January, 1902, granted a preliminary injunction restraining the Chicago Telephone Company from charging more than the franchise rate of $125 a year for its business service. Judge Grosscup, of the United States Court, decided on January 15, 1902, that Chicago has the right to regulate the price of gas. Judge Tuley, on January 31, 1902, ordered a receivership for the Lion Lace Industry, managed by Alexander Dowie, head of the Christian Catholic Church. A suit against Dowie had been brought by his brother-in-law, Samuel Stevenson, who had made over the business, but who claimed that undue influence was exerted. Judge Tuley decided that Stevenson was entitled to $100,000 or to its equivalent, the business itself. For Illinois trust case decision, see article TRUSTS.

Elections.—At the regular biennial State election held on November 4, 1902, the only officers voted for were treasurer and superintendent of public instruction. The vote for State treasurer was Busse (Rep.), 450,695; Duddleston (Dem.), 360,925. The State legislature for 1903 will consist of 36 Republicans and 15 Democrats in the senate and 80 Republicans, 62 Democrats, 1 Prohibition, and 2 People's party in the house. A very interesting feature of the election was the expression of opinion by the voters upon three questions of great political significance. A petition signed by more than 100,000 voters, secured the submission of these important questions, which were briefly: (1) Whether the voters favored a referendum upon acts of the legislature whenever 5 per cent. of their number petitioned for it, and a referendum upon proposed legislation whenever 8 per cent. of their number petitioned; (2) whether the voters desired a corresponding referendum upon measures adopted by or proposed to city councils and other local governing bodies; (3) whether the voters desired popular election of United States senators. The great majority of legislative candidates bound themselves to carry out the wishes of the voters as expressed in the result of the election, though the vote was merely an expression of opinion and not a legislative mandate. Notwithstanding the clumsy wording of the initiative and referendum propositions, the vote on them was about 428,000 for and 87,000 against. The third proposition was carried by about the same majority.

Other Events.—Early in January, 1902, the American Stove Company, with a capital of $5,000,000, was organized in Chicago. This new corporation was made up of nine constituent companies, manufacturing gas, gasoline, and oil stoves. In March was completed the organization of the National Millers' Federation at Chicago, which includes the National Millers' Association and the National Winter Wheat Millers' Association. The total capitalization of the new corporation is $400,000,000, and the annual output of their mills is about 100,000,000 barrels. In the latter part of April the Deering Harvester Company of Chicago announced that it was about to build large steel mills in South Chicago, and had secured one of the richest ore mines in the Mesaba range. The intention was to make itself independent of the United States Steel Trust in the manufacture of its raw and finished product. Later on, the Deering Harvester Company, with all its plants and mines, was absorbed in the International Harvester Corporation, a newly organized trust with an authorized capital of $65,000,000.

State Officers.—For 1902 and 1903: Governor, Richard Yates, elected for four years, term ending January, 1905; lieutenant-governor, W. A. Northcott; secretary of state, James A. Rose; treasurer, M. O. Williamson (in 1902), and Fred A. Busse, term two years, 1903-05; auditor, J. S. McCullough; superintendent of public instruction, Alfred Bayliss, term four years, 1903-07; attorney-general, H. J. Hamlin; superintendent of insurance (appointed), Henry Yates—all Republicans.

Supreme Court: For 1902 and 1903: Chief justice for year ending June, 1902, Jacob W. Wilkin; chief justice for following year, Benjamin D. Magruder (Rep.); associate justices, Carroll C. Boggs (Dem.), James B. Ricks (Dem.), Joseph N. Carter (Rep.), John P. Hand (Rep.), James H. Cartwright (Rep.), Benjamin D. Magruder (before June, 1902), and Jacob W. Wilkin (Dem.) (after June, 1902).

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

ILLINOIS, UNIVERSITY OF, at Champaign and Urbana, Ill., opened 1868. The total student enrollment for 1902 was 3221, excluding duplicates, and the faculty numbered 297. The gross income for the year was $778,789. The library contains 60,000 volumes. The most important addition to the curriculum was the opening of the School of Commerce. The special feature of this new department is its book equipment, which includes a number of complete sets of importance in French, German, and English. The new hydraulic laboratory was opened, the new classical laboratory was taken into use, and the new law school was moved into the old chemical building.

IMMIGRATION. The report of the commissioner-general of immigration shows that the total ascertained alien immigration to the United States in the fiscal year ending June 30, 1902, was 730,798. Of this number 82,055 were cabin passengers and 648,743 (the largest number ever recorded) were steerage passengers. As compared with the previous year, the cabin passengers showed an increase of 7105, and the steerage aliens of 160,825, or a total of 167,930. The increasing preponderance of male over female immigrants (steerage), which became noticeable in 1900, when the proportion of 3 males to 2 females changed to 2 males for every female, became still more marked in 1902, when the proportion was nearly 5 males to 2 females. Of the steerage aliens in 1902, 77,355 brought over $30 each, and 413,705 brought less than $30 each. Those who could read but not write numbered 2917, while 162,188 could neither read nor write, and 483,638 could both read and write. Since 74,063 of the aliens were under fourteen years of age, it may be seen of how little avail would be the legislation proposed in Congress in 1902, in accordance with the President's general recommendation, establishing a reading test for immigrants, but releasing therefrom children under fifteen and adults over fifty. A more effective test, if the proper administrative rules could be framed, would probably be that also recommended by the President—examining the immigrant as to his ability to earn a fair living in accordance with American standards, and to comprehend and fit into American political institutions. Such a test would seem especially important for the reason that aliens tend to congregate in the urban centres and there form little separate national colonies of their own, and for the further reason that the preponderating characteristics of the immigrants are essentially un-American; as is instanced by the fact that in 1902 more than 70 per cent. of the steerage immigration was from Italy, Austria-Hungary, and Russia. The countries sending the largest number of steerage immigrants to the United States in 1902 were: Italy, including Sicily and Sardinia, 178,375, an increase over the year previous of 42,379; Austria-Hungary, 171,989, an increase of 58,599; Russia, including Finland, 107,347, an increase of 22,090; Sweden, 30,894, an increase of 7563; Ireland, 29,138, a decrease of 1423; the German empire, 28,304, an increase of 6653; Norway, 17,484, an increase of 5236; and Japan, 14,270, an increase of 9001.

Of the more than forty races that contributed to the alien steerage immigration in 1902, ten contributed 85 per cent. These ten races were the same, though in slightly different order, that in 1901 contributed 86 per cent. of the immigration. In both years the Italians maintained the lead at 28 per cent., having more than double the number of immigrants sent by any other nation. The ten races most largely represented in each year, and the percentage of the total immigration which they furnished, is shown in the subjoined table:

Race.	Number in 1901.	Percentage in 1901.	Number in 1902.	Percentage in 1902.
Italian	137,807	28	180,535	28
Polish	43,617	9	69,620	11
Jewish	58,098	12	57,688	9
Scandinavian	40,277	8	55,780	8
German	34,742	7	51,686	8
Slovak	29,343	6	36,984	6
Croatian and Slovenian	17,928	3	30,233	5
Irish	30,404	6	29,001	4
Magyar	13,311	3	28,610	4
English	13,488	3	14,942	2
All others	68,903	14	98,714	15
Total	487,918	100	648,743	100

As regards destination, 203,824 immigrants, or nearly one-third of the whole number, were bound for New York, 139,096 were going to Pennsylvania, 50,939 to Massachusetts, 45,845 to Illinois, 29,038 to New Jersey, 25,995 to Ohio, 16,835 to Connecticut, 15,093 to California, 14,758 to Michigan, and 13,984 to Minnesota. The very limited distribution shown by these figures, indicates the danger of allowing immigration to continue unregulated. It is evident that concentrated alien populations grouped into distinct racial communities cannot be assimilated and Americanized.

IMMUNITY. See Serum Therapy.

IMPERIAL SERVICE ORDER, instituted in London in June, 1902, by King Edward VII., consists of a sovereign and companions. The number of companions is unlimited, but the order is only conferred for long and meritorious services and practically is confined to persons who have been employed in the various branches of the British civil service and who have served at least forty years. It has as yet been conferred on only about one hundred and five gentlemen.

INDIA, BRITISH, comprises all that part of the Hindustan Peninsula and of Burma (*q.v.*), which is directly or indirectly under British rule, but in a popular sense includes also certain other states, as Nepal (*q.v.*), which are beyond its borders, but are under the control or protection of the governor-general of British India.

Area and Population.—The total area of the British Indian empire is 1,560,160 square miles, of which 655,695 square miles are included in the native states. According to the census of 1901 the population of British India proper was 231,085,132, and of the Native States 63,181,569, or a total for all the British possessions of 294,266,701. The net increase in population for the decade 1891-1901 was 4,283,069, or 1.49 per cent., as compared with an increase of 11.2 per cent. in the decade 1881-91. The populations of the largest cities in 1901 were: Calcutta, 1,121,664; Bombay, 770,843; Madras, 509,397; Hyderabad, 446,291; Lucknow, 263,951; Rangoon (Burma), 232,326; Delhi, 208,385; and Benares, 203,095. Ethnically the principal racial elements in India are, in the order of their size, the Aryo-Indian, the Dravidian, the Tibeto-Burman, the Kolarian, and the Aryo-Iranian. The languages and dialects spoken number in all 118, of which 20 are used by more than a million each. According to religious belief, the population (1901) was divided as follows: Hindus, 207,146,422; Mohammedans, 62,458,061; Buddhists, 9,476,750; Christians, 2,923,241 (in 1891, 2,284,380). The total for the Hindu faith is the only one to show a decrease for the decade. In 1900 the enrollment in the 150,569 colleges and schools, public and private, was 4,462,844, of whom 20,744 were enrolled in 171 colleges. Three-quarters of the institutions are maintained or aided by the state. The expenditure of the British Indian government for education in 1902 was estimated at £1,126,000. At the head of the Indian educational system stand the five universities of Calcutta, Madras, Bombay, Punjab, and Allahabad, which are merely examining bodies, having each numerous affiliated colleges. The total number of matriculates in 1900 numbered 7519.

Government.—The administration of the British Indian empire in England is entrusted to a secretary of state for India, a cabinet minister responsible to Parliament, who is assisted by a council of not less than ten members, whose principal duty is to control the Indian budget. The supreme executive authority in India is vested in the governor-general (or viceroy) in council. The governor-general's council consists, for executive purposes, of five ordinary members, and the commander-in-chief of the forces in India, and for legislative purposes is expanded by sixteen additional members appointed by the viceroy. The enlarged council has power, subject to certain restrictions, to make all the laws for British India proper, and for British subjects within the Native States. For purposes of administration that part of India directly under British control is divided into nine principal provinces, each under a governor, a lieutenant-governor, or a chief commissioner, and several minor charges or districts. The provinces are Madras, Bombay, Bengal, the United Provinces of Agra and Oudh (formerly called Northwestern Provinces and Oudh), Burma (*q.v.*), the Punjab, Assam, the Central Provinces, and the new North-West Frontier Province, constituted in November, 1901. The governors of Madras and Bombay, who are appointed by the crown, are assisted by executive and legislative councils. The unit of administration within the province is the district, and each district is in charge of a deputy commissioner or collector, whose duties are executive, magisterial, and fiscal. The present governor-general is Lord Curzon of Kedleston, who succeeded the Earl of Elgin in 1898.

The nature and extent of British control in the Native States, which comprise over one-third of the area of the Indian empire, varies greatly, and is usually exercised through a government resident or agent, who advises and assists the native princes. The princes manage their own internal affairs, but have no power to make peace or war, and can maintain only a limited army. Some, but not all of them, pay tribute to the government, which controls all their external relations.

The Indian army is composed of both British and native troops. The commander-in-chief (General Lord Kitchener of Khartoum since 1902) has a seat in the viceroy's council. The establishment consists (1902) of 228,887 officers and men, of whom 73,638 are British troops and 155,249 native troops with European officers.

Finance.—The revenue of the Indian government is largely derived from land revenue or rental, opium and salt duties, stamp taxes, excise, and customs. The expenditure is incurred principally for railways and public works, administration, defense, pensions, and interest on the debt. The total revenue for the fiscal year ending March 31, 1901, amounted to £75,272,000, and for 1902 £76,547,000. The expenditures for the same periods were £73,602,000 and £71,874,000, respectively, showing an increase in the surplus from £1,861,000 in 1901 to £4,673,000 in 1902. The principal items of revenue in 1902 were: Railways, £20,178,000; land, £18,470,000; salt, £5,997,000; opium, £4,854,000, and excise, £4,086,000. The principal items of expenditure were: Railways, £19,360,000; defense, £16,129,000; departmental services, £11,164,000; irrigation and other public works, £6,811,000. The expenditure for

famine relief which in 1901 amounted to £4,125,000, in 1902 was only £556,000. The Indian debt amounts to £226,009,000. The value of the Indian silver rupee has been fixed since 1898 at 1s. 4d. (32.4 cents), or 15 rupees to the pound sterling.

Industries.—About 80 per cent. of the population of India is engaged in agriculture. The state owns the land and lets it out at a fixed annual rental. Rice, wheat, and other cereals, cotton, jute, tea, tobacco, opium, sugar-cane, indigo, and oil-seeds, are the principal products. The acreage of the chief crops in 1900 was: Rice, 72,808,952 acres; wheat, 16,104,779; other grains, 75,965,064; sugar-cane, 2,693,029; cotton, 8,375,841, and oil seeds, 10,327,641. The state forest reserves in 1900 covered 87,000 square miles. The principal manufactures are textiles, pottery and metal goods, the total manufacturing population being estimated at 20,000,000. The output of 286 collieries worked in 1900 amounted to 6,118,692 tons, and the mines, although very little developed, employed 89,188.

Commerce.—The commerce of India, in spite of the prevalence of famine and other adverse conditions, has increased enormously in the past few years. The value of the imports and exports for the past three fiscal years has been as follows:

	1899-1900	1900-01	1901-02
Imports	£64,186,000	£70,314,000	£73,076,000
Exports	78,026,000	81,328,000	90,664,000

The principal imports (1901-02) were cotton goods and yarns, £21,930,000; metals, £4,600,000; sugar, £3,901,000; mineral-oil, £2,558,000, and machinery, £2,004,000. The leading imports were seeds, £11,186,000; raw cotton, £9,617,000; rice, £9,280,000; raw jute, £7,865,000; cotton yarns and cloth, £7,244,000; jute manufactures, £5,808,000; opium, £5,682,000; and tea, £5,430,000. In the order of the value of their sea-borne trade, the countries having commercial relations in 1901-02 stood: Great Britain, China, Germany, France, and the United States. The value of the frontier land-trade amounted in 1901-02 to a total of £9,575,000 for both imports and exports.

Communications.—The number of miles of railway open for traffic on March 31, 1902, was 25,529, of which 460 miles were opened in 1901-02. In addition, the construction of 2284 miles has been sanctioned. The capital outlay on all the Indian railways on January 1, 1902, amounted to £219,483,000, and the expenditure for the year 1901-02 was £6,658,000. The net gain to the state, above expenditures, amounted in 1901-02 to £818,000, as compared with £325,000 in 1900-01. About two-thirds of the total length of railways in operation is owned by the state and operated either by the government or by private companies. The remainder of the lines are owned and worked by private corporations or native states.

HISTORY.

The Durbar at Delhi.—In the closing days of the year 1902 and extending over into 1903, the ceremonies and festivities attending the proclamation of the coronation of Edward VII. as king-emperor took place at a durbar (convocation)of the native princes of the British Indian empire. The Duke and Duchess of Connaught, the special representatives of the king and queen, landed at Bombay on December 27, and on the 29th, with Lord Curzon, the viceroy, made their state entrance into the city of Delhi. The Durbar itself took place on January 1, 1903, the viceroy and the royal representatives occupying thrones on a raised dais in the centre of a horseshoe-shaped amphitheatre, about which were seated 15,000 spectators. A force of 40,000 troops under the personal command of Lord Kitchener was drawn up in the arena. There, amid scenes of oriental splendor and display probably never equaled in modern times, the native princes paid homage to the viceroy and swore renewed allegiance to the emperor of India. After an eloquent address from Lord Curzon in which he delivered to the assembled princes the royal message declaring the hope that he might be permitted to secure to them as humane and equitable an administration as that of his mother, Queen Victoria, a long list of honors was announced.

The Northwestern Disturbances.—Operations against the Mahsud and Waziri tribes on the northwestern Indian frontier continued during the greater part of 1902, in spite of the fact that at the beginning of the year it was thought the trouble was practically ended. The policy of a strict blockade of the region which had prevailed since 1900 was then abandoned for a more active policy, consisting of a series of sharp rallies or raids for a period of a few days' duration by a force of 1000 or 2000 men. The effect of this new policy was so successful that in March, 1902, the chief commissioner of the North-West Frontier Province was able to report that he believed that the settlement of the difficulty as far as the Mahsuds were concerned was assured. The Waziris, however, continued to make trouble, and late in November necessitated the inauguration of a more active campaign against them. This resulted

ELEPHANT PROCESSION AT THE DELHI DURBAR

in considerable fighting and in the loss of a number of British troops, including Colonel Tonnochy and Captain White of the Third Sikh Regiment, who were killed in an assault on a stubbornly defended stone tower.

Other Matters.—The number on famine relief was somewhat larger through the year than in 1901, but conditions were reported as being much improved and the situation was not considered as serious as it has been for several years past. The number on relief averaged between 300,000 and 400,000 during the greater part of the year. An agreement was reached during the year between the imperial government and the India Office by which it was arranged that in the future the cost of Indian troops serving outside the country should be borne jointly by the British and the Indian government.

INDIA, FRENCH, the possessions of France in East India, comprising five geographically separate districts or *dépendances,* united under one colonial government for administrative purposes. The divisions are Chandernagore, an inland town, 17 miles north of Calcutta, on the Hoogly River, completely surrounded by British territory; Yanaon, on the eastern coast of British India, north of Madras; Pondicherry and Karikal, two districts on the east coast south of Madras, and Mahé, on the west coast. The total area is about 205 square miles, and the population in 1901 was 275,094, of whom only 1000 were Europeans. The most important settlement, Pondicherry, where the seat of the colonial government is located, has an area of 115 square miles and a population of 182,000. The colony is administered by a governor, assisted by an elective council, and is represented by a senator and a deputy in the French parliament. The local revenue and expenditure amounted in 1901 to Rs. 1,225,000 (1 rupee equals 32.4 cents), and the expenditure of France for the colony (budget of 1902) was 473,009 francs. The total imports in 1901 were valued at 3,793,000 francs, and the exports, chiefly ground-nuts and oil-seeds, at 22,253,000 francs. There are 23 miles of railway in operation, connecting Pondicherry and Karikal with the South Indian system.

INDIA, PORTUGUESE, consists of Gôa, on the Malabar, or western, coast of India, 265 miles south of Bombay; Damao, a small coast territory north of Bombay; and Diu, a small island off the Guzerat coast. Gôa, the most important division of the colony, has an area of 1080 square miles, and had, in 1891, a population of 561,384. Its estimated revenue (1901-02) was 1,019,868 milreis, and its expenditure, 1,028,420 milreis. The annual production of salt in Gôa amounts to about 12,500 tons. Hemp, grain, pulse, and betel-nuts are also raised. In 1900 the imports by sea and land amounted to Rs. 5,483,924, the exports to Rs. 1,562,287, and the British Indian transit trade to Rs. 5,719,122. There is a railway 51 miles in length connecting Gôa with the Indian railway system. Damao has an area of 384 square miles and a population of 63,284, and Diu, an area of 52 square miles and a population of 12,758.

INDIANA, an east central State of the United States, has an area of 36,350 square miles. The capital is Indianapolis. Indiana was organized as a Territory July 4, 1800; admitted as a State December 11, 1816. The population in 1900 was 2,516,462; in June, 1902, as estimated by the government actuary, it was 2,586,000. The populations of the largest cities in 1900 were: Indianapolis, 169,164; Evansville, 59,007; Fort Wayne, 45,115; Terre Haute, 36,673.

Finance.—The receipts of the treasury for the year ending October 31, 1901, were $7,358,140.84, the expenditure $7,129,493, and the balance in the treasury $642,292.32. The State debt on January 1, 1902, was $4,204,615.12, all of which was bonded. The debt was reduced $500,000 during the year 1901. No figures for the year 1902 are available.

Agriculture and Industries.—Conditions were favorable to agriculture in 1902. All cereals except wheat showed an increase of acreage in the period 1899-1902, according to comparisons of the census figures and the Agricultural Department's figures. If the figures are to be relied on, the acreage of wheat decreased from 2,893,293 acres to 2,217,718 acres in that period. The yield of wheat for 1902 was 35,484,448 bushels, valued at $24,129,425. The acreage of corn in 1902 was 4,520,637 acres, and the total yield 171,332,142 bushels, valued at $61,679,571—an amount nearly equal to the value of all other crops combined. Of oats there were 1,371,912 acres under crop, as against 1,017,385 acres in 1899. The yield for 1902 was larger than for several preceding seasons, being estimated at 48,565,685 bushels, valued at $13,598,392. The hay crop reached 2,635,215 tons, cut from 1,804,942 acres, and was valued at $22,847,314. The value of the potato crop was $3,431,233. The *American Grocer* states that more tomatoes were packed in Indiana during 1902 than in any other State except Maryland, and estimated the output at 992,686 cases of two dozen tins each. The report of the Department of Agriculture, January 1, 1903, showed 649,158 horses, valued at $47,824,869; 1,472,562 cattle, $38,783,980; 1,355,436

sheep, $4,667,308; and 2,712,397 swine, $22,349,327. The wool clip in 1902 was 5,395,320 pounds, which was about a 4 per cent. increase over the clip in 1901.

There was a large increase in coal mining during 1902, both in the number of mines in operation and in output. Large investments were made in coal lands. This was due to two causes, first, the coal strike in Pennsylvania, and, secondly, the failure of natural gas in supplying fuel for the manufactories situated in the gas belt. The year's production of coal was estimated at 8,357,417 tons, an increase of more than 1,000,000 tons over 1901. The output was somewhat curtailed by the inability of the railroads to handle the coal. The construction of a number of steam and electric railroads to tap the coal regions was begun or actively pushed during the year. Practically no labor troubles were experienced in the mining regions, the agreement between operators and men being faithfully observed. In 1901-02 the State labor commission adjusted 42 labor controversies involving 202 firms and 10,000 employees.

Conventions and Platforms.—The Republican State convention was held at Indianapolis on April 24, 1902. It was the first political convention to meet in any State during the year, and was looked forward to with interest, as likely to be indicative of Republican sentiment throughout the Union. Senator Beveridge, permanent chairman of the convention, sounded the keynote of the Republican programme in his opening address, in which he emphasized the necessity of securing foreign markets for American products. The principles of the national platform of 1900 were reaffirmed by the convention, and the administration was endorsed. The platform favored the most stringent national and State legislation to suppress anarchy. It advocated just and liberal reciprocal relations between the United States and Cuba. The administration policy in the Philippines was approved, emphasis being laid on the necessity for giving the people of the islands increased participation in the administration of their domestic affairs when they shall have proved themselves capable of self-government. The policy of protection was endorsed with this proviso: "While we favor such modification of tariff schedules as from time to time are required by changing conditions, we insist that such changes shall be made in line with the fundamental principle of protection." Combinations of capital prejudicial to competition were denounced. The construction of an isthmian canal was advocated, also the exercise of a liberal pension policy, Chinese exclusion, and the exclusion of all undesirable immigrants.

The Democratic State convention was held at Indianapolis, June 4, 1902. The principal question at issue was the reaffirmation of the Kansas City platform of 1900. There was strong opposition to such a course, and in the end its opponents carried the day. In the platform ultimately adopted bimetallism was ignored, except in the shape of a resolution declaring that the increased supply of money, arising from the doubled production of gold, had brought a rise in prices and revival of industry, which demonstrated the truth of the bimetallic theory. The Dingley tariff was denounced as the "breeder of trusts," and a demand was made that tariff duties be levied for the purposes of revenue only. The Philippine policy of the administration was condemned in unequivocal terms. The platform favored the election of United States senators by popular vote. The ship subsidy bill was condemned, also the attitude of the Republican party in refusing to give the Interstate Commerce Commission power to enforce its decisions against discriminations in railroad rates. The construction and control of an isthmian canal was approved.

Elections.—At the regular biennial State elections, held November 4, 1902, the following officers were voted for: Secretary of state, auditor, treasurer, and attorney-general. The vote for secretary of state was, Storms (Rep.), 298,819, and Schoonover (Dem.), 263,555. The State legislature for 1903 will be composed of 33 Republicans and 17 Democrats in the senate, and 61 Republicans and 39 Democrats in the house.

State Officers.—For 1902 and 1903: Governor, Winfield T. Durbin, elected for four years, term ending January, 1905; lieutenant-governor, N. W. Gilbert; secretary of state, D. E. Storms; treasurer, Leopold Levy in 1902, and N. U. Hill in 1903; auditor and commissioner of insurance, David E. Sherrick; attorney-general, W. L. Taylor in 1902 and Charles W. Miller in 1903; superintendent of education, Frank L. Jones in 1902, and F. A. Cotton in 1903—all Republicans.

Supreme Court for 1902 and 1903: Chief justice, John V. Hadley; associate justices, Leander J. Monks, John H. Gillett, James H. Jordan, and Alexander Dowling—all Republicans. For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

INDIANA UNIVERSITY, Bloomington, Ind., founded 1820. In 1901-02 the faculty numbered 70 and the attendance was 1334, of whom 104 were law students. The income was $165,000. The library contained 43,000 volumes. The chief event of the year was the installation of William L. Bryan as president, who entered upon his duties on August 1, 1902. During the year a fireproof science hall was

erected at a cost of $100,000. A student building for the use of men and women students is planned for 1903 to cost $60,000, of which one-half was given by John D. Rockefeller, the canvass among the students and former students resulting in securing more than the amount originally pledged.

INDIANS OF THE UNITED STATES, PRESENT CONDITION OF. The Indians of the United States having governmental relations, representing about 150 officially recognized tribes, are gathered upon some fifty reservations, nearly all west of the Missouri, having a combined area about twice that of the State of Kansas. There are also some thousands of wandering Indians in the West not attached to agencies, with several mixed-blood tribal remnants in the East, some of them upon State reservations, but not subject to federal supervision.

In dealing with the Indian problem the first question asked by an inquirer would naturally be, How many Indians are there?—but a little investigation will show that before that question can be answered we must first decide another, viz., What is an Indian? Here the official figures are of little aid, and, in fact, are misleading. Under the general ruling, the government regards as Indians all persons having any appreciable proportion of Indian blood, together with a small number of whites adopted by intermarriage; and, in the Southwest, a considerable number of American and Mexican captives, originally taken as children in former raids along the frontier and reared as Indians among the tribes. With the five civilized tribes in the Indian Territory the fact is further obscured by the admission to Indian citizenship of thousands of their former negro slaves, with several thousand white men adopted by intermarriage, thousands of others enrolled on the strength of such a small proportion of Indian blood as 1-32d or 1-64th from some remote ancestor, and thousands of others whose claims have been admitted by the government enrolling commission, although repudiated by the tribal courts. In the Cherokee Nation, where invested funds and valuable lease privileges made Indian citizenship a thing particularly to be desired, these "galvanized Indians," as they are locally known, formed an association for raising funds with which to procure their legal recognition, with the result that the citizen population of the Nation, which in 1880 was 20,336, including all recognized adoptions and the mixed-bloods of every degree, jumped to 25,978 in 1890, and is now 35,000. In 1890 the 26,000 recognized "citizens" included 6000 negroes and adopted whites, less than half of the remainder being rated as full-bloods. As practically all of the later additions to the rolls were repudiated by the Indians themselves so long as they had any voice in the matter, we may assume that the present citizen enrollment of 35,000 in the Cherokee Nation represents an Indian population of pure or mixed blood of not more than half that number. The Seminole Nation, officially reported at 2757, includes about 200 adopted whites and over 800 negroes and negro-Seminole half-bloods. Among the reservation tribes similar conditions exist, but in less degree. Thus the Kiowa tribe of 1115 persons includes 8 adopted whites and 32 captives of whom no separate account is kept. The children of captives by one or both parents may number 300 of the remainder. The confederated Comanches, numbering 1400, include probably 60 adoptions and captives, besides children of the same mixed blood. Some of the smaller remnant tribes, as the Peorias (181) and the Wyandots (342) do not now include a single full-blood. Taking the Indian population of the United States, exclusive of Alaska, as now officially reported in round numbers at 270,000, and striking out the nearly 20,000 citizen negroes, 500 citizen whites, and probably 10,000 additional legalized but repudiated claimants, in the five civilized tribes, we have left an Indian population, pure and mixed, of about 235,000. Balancing adoptions in the reservation tribes against uncounted remnants in the East, this is probably very near the true figure.

Our Indian problem therefore centres upon about 235,000 survivors of the aboriginal stock, representing an original full-blood population within the same territory of perhaps four times as many. The Indian population of Alaska, not noted in this calculation, was estimated at about 32,000 when the territory was annexed and is now probably about half that number. The New York tribes, the Pueblos, Navahos, and a few others being almost entirely self-supporting, the problem concerns itself chiefly with the tribes upon the plains reservation. To administer the affairs of these 235,000 aborigines and their alien connections the government maintains an Indian Office with over 100 employees in Washington, and a small army of agents, inspectors, clerks, teachers, mechanics, farmers, and laborers in the field at a total expenditure last year of over nine million dollars ($9,132,028.10), a per capita cost of nearly $39 apiece directly from the government. Missionary bodies and State legislatures contributed about $400,000 more, making a total not far from $10,000,000. Besides all this must be considered the lease moneys. The allotted Indian almost invariably declines to work upon the lands allotted to him in severalty under recent treaties, but at once looks around for some landless white farmer or stock-raiser to whom to rent them. The ordinary cost to

the renter on the western Oklahoma reservations, for a five-year lease of 160 acres, including the building of a 3-room house, well, and substantial wire fence at his own cost, to become the property of the Indian at the expiration of the lease, is the breaking of the raw prairie ground, and an annual money payment in addition of from 50 cents to $2.00 per acre. In several tribes this lease income amounts to over $100,000 per annum, in addition to what is received directly from the government or private philanthropy. The present direct money income of the Kiowas and Comanches, exclusive of school support and other benefactions, is about $150 per capita annually, of the Kaws $160, and of the Osages over $300, all without the expenditure of a stroke of work or a dollar of taxation or house rent, yet each of these tribes is financially insolvent, the debts of the Osages amounting to nearly a million dollars. How best to bring to an end this constant expenditure of money and effort upon an insignificant fraction of our population, composed chiefly of incompetent or unwilling beneficiaries who make no return in taxation or the upbuilding of the communities in which they live, is the "Indian problem" of to-day.

The solution proposed by the present commissioner, Mr. Jones, is radical and eminently practical, viz.: at once to discontinue rations or other gratuities to all but the physically helpless; to limit the educational system to reservation schools devoted chiefly to industrial training; to confirm every Indian in an allotment inalienable for a reasonable term of years; and as soon as possible to cancel all further government obligations by a per capita division of all tribal funds held by the government, the Indian then to be freed from supervision and control and thrown upon his own resources, to sink or swim according as he chooses or fails to make the effort. The result would be to relieve the American taxpayers of a great and increasing burden, while yet paying over to the Indian every dollar to which he had any just claim, to turn the energies of several thousand persons now engaged in Indian work into other channels of more public usefulness, and to hasten the general development of the western country. It is doubtful if more than a small percentage of the Indians could thus stand upon their own feet, but those who survived the test would be those worthy of survival. In line with this policy 12,000 able-bodied individuals have been dropped from the ration rolls during the year, the amount thus saved being devoted to the hiring of Indian labor on roads, ditches, etc., the recipients thus giving value received.

In the meantime the problem bids fair to solve itself in the near future by the extinction of the Indian. The race in the United States is debilitated, diseased, and decaying. Almost without exception the official reports show a steady decrease, wherever reliable figures are obtainable. Thus the Blackfeet, Crows, Pawnees, Kaws, and Comanches have diminished respectively since 1875 from 7200, 4200, 2200, 516, and 1721, to 2043, 1911, 629, 218, and 1409.

The government appropriation for Indian education during the fiscal year was $3,438,000, exclusive of the large sums expended by missionary denominations, by the State of New York, and by the five civilized tribes of the Indian Territory for their own schools. The government enrollment is about 25,000 pupils in 134 day schools and 90 boarding schools upon reservations, and 25 non-reservation boarding schools. The State of New York provides for about 800 more. The 48 mission schools care for about 3400 more, and the five civilized tribes provide for about 14,000 of their own, making a grand total of about 43,000. As the Indian child usually enters school ignorant of the commonest things of civilized home life, as well as of the language, it is evident that domestic and industrial teaching must take precedence over literary, and that the practical home-keeping can best be taught in a good boarding school. Experience has also shown that the ornamental education acquired in certain much advertised eastern schools is worse than useless on the reservation. The commissioner covers the ground in a single sentence: "More reservation boarding schools and less non-reservation institutions are required."

The lease evil has grown to such proportions as to constitute now one of the greatest hindrances toward self-support by honest labor, and it is probable that steps will soon be taken to curtail the privilege to the minimum. The question of the disposition of lands whose owners have died since the allotment has also come to the front. Under the treaties the lands were inalienable for a term of years, but so eager have been the Indian heirs to dispose of them, and so anxious the white tenants and homeseekers to buy, that a bill has recently been enacted by Congress giving the heirs the option of sale under supervision. The law is continuous in action, and as on some reservations the number of allotments thus vacated by death is already nearly one-third of the whole, the speedy result will be to transfer a large quantity of Indian land to the white man by individual sales. A bill is also before Congress and will probably be passed at its next session, for the sale of over 500,000 acres of pasturage reserved to the Indians on the

opening of the Kiowa and Comanche country. The effect will be to further the development of the new country.

The retroactive fight against the Kiowa and Comanche treaty, begun by Lone Wolf and others two years ago, has been adjudged adversely to the Indian contestants by the Supreme Court in a decision which promises to be of far-reaching effect. Briefly, the opinion holds that the Indian, as a ward of the government, has no inherent legal right or title whatever, but is entirely at the disposition of the government as represented by Congress, which may at its pleasure cancel any agreement, make any regulation or open any reservation without the necessity of negotiating with him. An entering wedge was the decision rendered thirty years ago that an Indian tribe, not being sovereign, could not make a treaty, since which time these instruments have been technically known as "agreements." In anticipation of unfavorable result upon this and other similar appeals and protests a considerable agitation has begun in several tribes for removal to Mexico and transfer of tribal interests and funds from the custody of the United States government to that of Mexico. The movement, which is being fostered by several attorneys and Mexican agents, appears to be strongest among the Cherokees, Kickapoos, and Kiowas, but can hardly obtain the concurrence of this government.

Among special regulations promulgated during the year may be noted an effort to systematize Indian personal names upon the family basis, with a view particularly to the settlement of heirship questions. More stringent instructions have been issued in regard to marriage, intended to prevent polygamy and the prevalent frequent change of partners without the formality of divorce. The famous "short hair" order, issued early in the year, instructing agents to use their efforts to prevent the wearing of long hair or the practice of painting, with the suggestion of deprivation of rations and "a short term in the guard-house at hard labor" in certain cases, provoked so much criticism that it has been allowed to fall into desuetude. The long-standing difficulty between the Osages and the traders in regard to the debts due from the Indians to the latter has been settled by the appointment of a commission to investigate the claims and make equitable payment from the Osage funds. Special appropriation for irrigation purposes has been made for a number of reservations within the arid belt. In view of the growing necessity of the Navahos from the invasion of their lands by cattlemen, a large body of public land adjoining their reservation on the southwest has been temporarily set aside for their use. Provision has been made for the relief of the distressed Mission Indians of Warner's Ranch, Southern California, who are about to be dispossessed on technical grounds from the homes which they have occupied for generations. No new agreements were ratified by Congress during the session, although several are pending.

In regard to conditions in the Indian Territory, still ruled under tribal governments by the Cherokee, Creek, Choctaw, Chickasaw, and Seminole nations, known as the "Five Civilized Tribes," it may be said briefly that the work of the commission appointed ten years ago to secure the opening of this section upon the basis of regular citizenship is now practically completed. Agreements have now been reached with each of the tribes for a per capita division of the tribal lands, the readjustment of the tribal revenues, the winding up of the Indian governments and the complete installation of United States jurisdiction over the Territory not later than 1906. In the meantime the government has already assumed limited jurisdiction over educational affairs, leases, and certain other important matters. Hundreds of miles of railroads, telegraph and telephone lines are in operation or under construction, nearly 200 town sites have been plotted, and the white population of the Territory is now close to half a million.

INDIAN TERRITORY, an unorganized Territory of the United States, set apart by Congress in 1834 for Indian reservations, has an area of 31,154 square miles. In 1900 the population was 391,960; in June, 1902, as estimated by the government actuary, it was 433,000. This total is made up of Indians, some 16,000 negroes, and 300,000 whites, including men with permits to reside in the Territory. There are 5 Indian nations, and 7 reservations in the Territory. The largest town is Ardmore, with a population in 1900 of 5681.

Municipal Bond Issues.—By a Congressional act of May 19, 1902, municipalities in Indian Territory of 2000 or more inhabitants were authorized to issue bonds up to 10 per cent. of their assessed valuation for the construction of sewers and waterworks and the erection of school buildings. Authority for the bonds was to be obtained by a two-thirds vote of the municipal electors and a sinking fund was to be created for the redemption of the bonds within twenty years. In municipalities where bonds were already authorized by special acts of Congress, the bonds allowed under this general act should be correspondingly diminished.

Present Conditions.—The five civilized tribes—the Cherokees, Creeks, Seminoles, Chickasaws, and Choctaws—own the entire 31,000 square miles of land. The

portation; Manufactures, Trade and Commerce; Industrial Combinations; Labor; Immigration; Taxation; Irrigation; the statistics of prices, exports, combinations, etc., and an index of the particular volume and also of the entire report. While it is impossible even to indicate here the breadth and manner of the commission's report, yet a single subtitle of the article Transportation, in the final volume may be mentioned as illustrative, viz.: The Anthracite Coal Problem. Under it is given a general description of the coal fields, of the railways running to these fields, and somewhat of their economic history, the relation of the independent operators to the railroads, the peculiarities of the anthracite fields and of the foreign demand for coal, and the influence of these peculiarities in causing the railroads to pool their issues; the history of previous attempts at railroad consolidation in the fields and the method of the present consolidation and its probable economic effects. Again, under the title Immigration, a full account is given of the status of immigration, illustrated with charts; the economic effect of wages and employment; the agricultural distribution of immigrants; the method of inspecting immigrants, together with recommendations for the revision and codification of existing laws relating to the deportation of immigrants and the restriction of immigration.

INFLUENZA, EPIDEMIC (La Grippe). According to Pfeiffer, Canon, Klein, and others, the pathogenic organism of influenza is a very minute bacillus which develops in the nasal passages, throat, larynx, bronchial tubes, and blood. These organisms are present in large numbers in the bronchial secretions and occur only during the acute stages of the disease, gradually disappearing as the attack abates. The disease has been widely distributed during 1902 both in Europe and America, and although it is described as of a rather mild type, the death rate has been on the increase. The Chicago Board of Health has introduced a method of direct microscopical examination of the sputum of persons suffering from influenza, and it has been found possible to recognize the bacillus in this way without waiting for the growth of a culture. Accurate diagnosis of the affection is thus made in a very short time with great benefit to both physician and patient. The disease shows a predilection for the nervous system, being characterized by peculiar nervous and mental manifestations. Dr. S. E. Jelliffe, of New York, has attempted to demonstrate a relation between the increased number of suicides and the prevalance of influenza during the last dozen years. He quotes the *Weekly Bulletin* (March 1, 1902) of the Health Department of Chicago as follows: "Against the conditions which have produced these results [an enormous increase of mortality from pneumonia, the chronic diseases, suicide, and other forms of violent death—53 per cent. more of these than in the previous year] sanitary effort and administration can do little. Influenza . . . not only disastrously complicates other diseases, but exerts a most baneful effect upon the nervous system, causing all forms of mental disturbances, from mere irritability of temper to suicidal melancholia and homicidal mania."

INSANITY. The fifty-fifth report of the British commissioners of lunacy shows that the total number of certified lunatics in England and Wales on January 1, 1901, was 107,944, an increase of 1333 since the same date in 1900. The commissioners observe that although there has been a diminishing rate of increase during the last ten years, previous experience has shown that it is not wise to count upon a continuance of this satisfactory condition. It was suggested that this diminution might be made continuous if an hereditary tendency to insanity was made a bar to marriage, or if marriage was prohibited to persons with a distinct family history of alcoholism. After three admissions into an asylum a case should be regarded as incurable recurrent insanity, always excepting acute attacks of insanity following childbirth. The recent international conference on the treatment of the insane, held at Antwerp, in September, 1902, adopted the following resolutions: That the confinement of the insane henceforth be abandoned except in the case of those recognized as dangerous. That the system of boarding insane persons with families be carried out whenever possible. That it is expedient to renew the wish formulated at the congress at Paris for the establishment of schools for special classes of the mentally weak, under medical supervision. That the manner of placing patients be left entirely to physicians, and that forcible restraint should be condemned. According to *Charities* for February, 1902, Massachusetts contemplates establishing "State farms" for its insane. It is planned to take the "pauper insane" from country, city, and town poor-houses and bring them together in large farm colonies, under as nearly domestic conditions as possible. This farm is 1500 acres in extent and within two years the experiment will have been fairly made and the public will be able to judge the results. The national government has recently completed an asylum for insane Indians at Canton, S. D., costing about $60,000. It is stated that this will not accommodate all the Indians needing asylum care. Contrary to the general belief on this subject, that insanity is unknown among savage races, the Indians become insane over religious matters, and the same causes which have

increased insanity and diseases of degeneration among negroes, apply to Indians. It has been very properly argued, however, that their mental degeneration was not due to savagery, but to the vices of advancing civilization, especially the abuse of alcohol. Concerning the relation of insanity to alcohol, Dr. Robert Jones, superintendent of the London County Council's Asylum at Claybury, writes in the *Lancet* of October 25: "If the Lunacy Commissioners' Blue Book for England and Wales be consulted, the proportion per cent. of instances in which alcohol has been assigned as the cause of insanity to the yearly average number admitted into asylums in the five years from 1895 to 1899 inclusive, is 21.8 for males and 9.5 for females. The proportion is much higher in Scotland, and after allowing for the deaths of those whose form of insanity is more immediately fatal than those caused by alcohol, there are, I believe, upon the lowest computation, remaining in the asylums at the present time no less than 10,900 males and 5800 females who are mentally decrepit through the effects of alcohol." During the nine years that the Claybury asylum has been open, 8493 patients have been admitted, of whom 21.2 per cent. of the males and 12.6 per cent. of the females owed their insanity to drink. A total of over 800 men and 594 women have been thus rendered incapable of productive work through their own acts and have been or are being supported by the taxpayers. With regard to the reputed increase of the drink habit among women Dr. Jones says that the proportion of women committed to asylums for insanity brought on by alcohol is on the increase, especially among the laboring classes. Whereas the proportion per cent. of these patients to the total admissions into asylums bears a ratio in the private class of 20.8 males and 9.4 females, it is 22.7 for males and 9.7 for females among the pauper class. This possibly indicates less moral stamina among the women of the poorer classes, and on the contrary, the increased inhibition which education, the influence of public opinion, and the effects of social ostracism may exercise upon the well-to-do. See ALCOHOL.

INSECTS AND THE PROPAGATION OF DISEASES. The importance of the rôle played by insects, particularly mosquitoes, in the transmission of diseases is now thoroughly recognized. Many investigations have been on foot during 1902, but most of the work done was merely confirmatory of results already arrived at. The adoption of the mosquito theory as a basis for preventive measures against yellow fever and malaria has been productive of much good. Major Gorgas describes the manner in which the sanitary department of Havana rid that city of yellow fever and lessened the number of cases of malaria. It was the aim of the department to destroy all the stegomyia mosquitoes possible, leaving as few as might be to transmit the fever from patient to patient. Efforts were also directed toward preventing mosquitoes that escaped destruction from biting yellow fever patients and finally to kill all mosquitoes that had become infected. The screening of patients, as well as of all water receptacles, was urged, and the pouring of petroleum on all such drains, privies, etc., as could not otherwise be protected. A house-to-house inspection and crusade against mosquitoes was made, and infected houses disinfected by burning pyrethrum powder at the rate of one pound to every thousand cubic feet of air space. Dengue has been added to the list of mosquito-borne diseases. This is an acute febrile disease of tropical and subtropical countries, characterized by febrile paroxysms, pains in the joints and muscles, and sometimes a cutaneous rash. Dr. Harris Graham, professor at the American College at Beyrout, Syria, reports that the disease is due to a protozoal parasite, and is conveyed by the common culex mosquito. The United States marine hospital service has requested its health officers to furnish information upon the appearance of epidemic dengue, in order that investigators may be immediately sent to study the disease. The war on mosquitoes has been carried on with vigor in many places. In the borough of Queens, New York City, all the breeding places of mosquitoes have been treated with petroleum. In Flushing, L. I., the residents have been doing similar work. At Lawrence and Inwood, L. I., where $1000 were appropriated by the authorities, excellent results have been accomplished. The Long Island Railroad is assisting the work done by draining all pools of water on its property. The New York City Board of Health sprinkled crude petroleum on ponds and other breeding places of the mosquito during the summer of 1902, the health commissioner asking for $10,000 to carry on the work. Baltimore and New Orleans have adopted similar measures, and many other communities are now preparing for regular summer campaigns against these pests. There is a plan for exterminating mosquitoes by causing a fungus disease among them, based on the belief that the infection of mosquitoes in this manner will exterminate them cheaply and efficiently. The professors of biology in the universities of Wisconsin and Chicago insist that the plan is feasible, and Prof. R. H. Pettit has shown that mosquitoes are killed by this fungus, which is closely allied to the one which kills flies in the autumn. The mosquitoes are found attached to the surface upon which they die by filaments of the fungus extending from the body of the insect, which is filled with the fungus growth, and is finally

completely covered by it. Spores appear upon the outside of the mosquito, which are forcibly ejected into the air, and, coming into contact with other mosquitoes infect them. Mr. A. Weaver, an electrical engineer, while making some experiments in harmonic telegraphy, found that at a certain note all the mosquitoes near flocked to the instrument. The phenomenon is thought to be an instance of sexual selection. Hiram Maxim, according to the London *Lancet*, made similar observations by means of an electrical lamp which gave off a constant musical note. The instrument was soon covered with mosquitoes. It has been suggested that this peculiarity may be the means of destroying mosquitoes on a large scale. See YELLOW FEVER.

INTERNATIONAL SUNDAY SCHOOL CONVENTION. See SUNDAY SCHOOL CONVENTION, INTERNATIONAL.

IOWA, a central western State of the United States, has an area of 56,025 square miles. The capital is Des Moines. Iowa was organized as a Territory July 3, 1838, and admitted as a State December 28, 1846. The population in 1900 was 2,231,853; in June, 1902, as estimated by the government actuary, it was 2,229,000. The populations of the largest cities in 1900 were: Des Moines, 62,139; Dubuque, 36,297; Davenport, 35,254; and Sioux City, 33,111.

Finance.—The balance in the treasury of the State of Iowa at the beginning of the calendar year 1902 was $780,527.75. Receipts from all sources during the year amounted to $3,215,611.74, while the total expenditures were $3,069,222.84, leaving a balance on hand on January 1, 1903, of $926,916.65. The main items of revenue and the amounts derived therefrom were as follows: From county treasurers on account of State tax levy, $1,536,519.73; from county treasurers for the support of insane in State institutions, $380,490.61; from county treasurers for the support of State charitable institutions, $36,943.02; from the collateral inheritance tax, $119,719.85; from the tax on insurance companies, $224,569.37; from payment of all claims against the United States government on account of the Civil War, $456,417.89; from fees collected by State officers, $282,160.42; from miscellaneous sources, $178,790.85. Iowa has no debt.

Agriculture.—For the first time in a number of years Iowa was surpassed in the value of its annual farm produce in 1902 by Illinois. This could occur only through a partial failure of one of the two staple crops, corn and oats, while Illinois obtained at the same time a nearly normal yield. In 1901 Iowa was the first State in the production of both corn and oats. In 1902 long-continued spring rains and early fall frosts combined to decrease the amount of Iowa's corn crop about 25 per cent. The quantity (297,686,016 bushels) was equal to the average yield, but the poor quality made it hardly desirable for milling purposes and diminished its value for feeding. The corn acreage was 9,302,688 acres and the total value of the crop $98,236,385. The wet weather also caused a considerable portion of the oats to rust and go down before it was completely filled. There were 4,063,138 acres of oats, from which were threshed 124,738,337 bushels, worth $31,184,584; 1,094,490 acres of spring wheat were harvested, yielding 13,462,227 bushels, valued at $7,404,225. The crop of winter wheat was about one-tenth as large. The barley crop, which covered 513,499 acres, amounted to 13,505,024 bushels, valued at $4,861,809. The damage done to the cereals by the wet weather was partially compensated by an unusual crop of hay, in the production of which Iowa ranked second only to New York State. The yield of 5,211,232 tons, cut from 3,101,924 acres, was valued at $33,873,008. Of potatoes, 16,966,642 bushels, valued at $5,768,658, were produced on 173,129 acres. On the whole, crops were considerably better than in 1901, when corn suffered so severely from drought. The price of land has been steadily advancing in Iowa for over a decade, but 1902 witnessed unusual activity. One minor cause of this—and noteworthy even from a sociological standpoint—is the general spread of rural telephones and rural free delivery of mail throughout the State. The building of inter-urban trolley lines has been begun. Another cause of the appreciation in value of farm property is the growing importance of stock-raising in the State. According to the statistics of the Department of Agriculture the value ($277,410,484) of Iowa's farm animals on January 1, 1903, was 30 per cent. greater than the value of those in any other State. Iowa had more horses and 75 per cent. more cattle than in any other State except Texas, the numbers being 1,144,570 horses, and 4,964,924 head of cattle. There were 7,438,655 swine—more than in any other two States. The State mine inspector reported 15,175 mine employees in 1901, nearly all of whom are coal miners. The production of coal increased about 3 per cent. in 1902.

Railroads.—The annual report of the Board of Railroad Commissioners of Iowa for the year ending June 30, 1901, shows that the total railroad mileage of the State for that year was 9,353.9 miles, representing a capitalization of $141,498,923.01 and a funded debt of $149,913,248.70. The total passenger earnings for the year were $12,540,451.03. The total freight earnings were $34,049,174.67, and the gross

income including all earnings and receipts was $54,480,776.67. The number of passengers carried was 8,155,706. The passenger earnings per mile of road were $1,551.08. The number of tons of freight carried was 17,308,153 and the freight earnings per mile of road were $4,206.56. The total expenses of the railroads of Iowa amounted to $37,449,971.10, leaving a net revenue of $17,314,664.85. The mileage in 1900 was 9,171.48; the gross earnings $52,074,571.77, and the expenses $35,409,424.82, leaving a net revenue of $16,665,146.79. The number of employees in 1901 was 37,836, receiving $22,253,822.79 in wages and salaries, while for 1900 the number of employees was 37,696, receiving in wages $21,363,319.55. Taxes paid to the State in 1901 amounted to $1,521,553.42, or $162.53 per mile of road. No official statistics have been issued since 1901, but from unofficial sources it is estimated that the gain in traffic, both passenger and freight, has been even greater in 1902 than in 1901.

Legislation.—The regular session of the Twenty-ninth General Assembly of Iowa began on January 13 and ended April 11, 1902. Among the acts passed were the following: The law providing that savings banks and State banks should not make any loans to any one person or corporation in an amount exceeding 20 per cent. of their capital stock, was amended to permit such banks to loan not exceeding one-half their capital stock to any one person or corporation on notes or bonds secured by unincumbered farm land in the State worth at least twice the amount loaned. Railroads are required to submit to an executive council consisting of the governor, the treasurer, the auditor, and the secretary of state, for purposes of taxation, a detailed report of their gross and net earnings on business originating or transacted within the State; and if the railroads refuse to make such reports the executive council is authorized after having assessed the property for taxes upon the best available information, to add an indemnity of 25 per cent. thereto. Loan and investment companies are also directed to submit reports showing the value of their property and business in the State for purposes of taxation. A negotiable instruments law was enacted uniform with that passed by various other States. An act was passed providing for the compulsory education at school of children between seven and fourteen years, and authorizing the establishment of truant schools and the appointment of truant officers. Boards of police and fire commissioners were created in cities of 60,000 or more, to be appointed by the mayor with the consent of the council and to hold office for six years. The board was to consist of three members representing both political parties and to be removable for cause by act of the municipal legislature. All officers of the police and fire departments except the chief of police and the chief of the fire department were to be removable for cause by the board of commissioners.

An habitual criminal act provides that any person who has been twice convicted for terms of not less than three years each may upon the third conviction be adjudged an habitual criminal and imprisoned for not more than twenty-five years. Kidnapping is made an offense punishable by not less than ten years in prison.

An act was passed to provide for the construction of fire escapes and other safety appliances in buildings of three stories and higher.

An act was passed strengthening the provisions of the act of 1901 regulating the practice of osteopathy and providing for the issue of revocable certificates to practice.

A "Louisiana Purchase Exposition Commission" was appointed to consist of thirteen members to represent the State of Iowa and to prepare Iowa's exhibit at the Louisiana Exposition to be held at St. Louis in 1904. For the purposes of this exhibit $125,000 were appropriated.

The executive council was directed to raise by State taxation for general State purposes approximately $2,300,000 for the year 1902 and approximately $2,000,000 for the year 1903. A proposed constitutional amendment, to be referred to the next General Assembly for action, provided for increasing the number of State senators and representatives, and directing inequalities of representation to be equalized every ten years instead of as at present at every regular session.

Another amendment similarly proposed provided for general biennial elections instead of as at present, electing the governor, lieutenant-governor, the superintendent of public instruction in odd years and the secretary of state, treasurer, attorney-general, representatives, and State senators in the even years. The proposed amendment also involves having the legislature meet in the odd years after 1906 instead of as at present in the even years.

Political.—One of the most significant political events of the year was the refusal of Speaker Henderson in September to run for re-election to Congress. His own reason recited in a letter in which he declined to accept the renomination, was that he found, after careful study, that there was a growing sentiment among Republicans in his district and State that trusts "can be cured or the people benefited by free trade, in whole or in part," a sentiment which he could not endorse, and refused to stand for. In another statement he said: "I must say, and emphatically, that I

do not believe that a single schedule of the Dingley tariff law can be so amended as to relieve the people from the oppression of trusts or combinations of capital, however named, and that such action may involve the retarding of our expanding commerce and getting and holding of foreign markets. Indeed, I believe such a plan to be fraught with grave dangers to the people." The question arose in several quarters as to Mr. Henderson's real reasons for retiring and opinions were freely expressed that the reason given by him was inadequate. Mr. Henderson's estimate of Iowa opinion on the tariff issue was confirmed by Governor Cummins, who said that it was "practically the unanimous sentiment of the Republican voters that the time had come for certain changes in the tariff." Judge B. P. Birdsall, who was nominated in place of Henderson, declared for tariff reform in his letter of acceptance on September 25, saying: "The Republican party of Iowa . . . will not permit the policy of protection to become a shield for the greed and avarice of man."

Conventions and Platforms.—Only minor State officers were nominated at the Republican convention, held at Des Moines on July 30, but the proceedings were of more than usual interest, because of the attitude of party leaders regarding the reaffirmation of the sentiment regarding tariff matters voiced in the platform of 1901. In that platform tariff abuses were denounced, and a demand was made for reform. Leaders like Henderson, Wilson, Shaw, and Allison were not in sympathy with the tariff reform movement advocated by Governor Cummins, Director of the Mint Roberts, and Senator Dolliver. In the committee on resolutions, the governor scored a victory, securing the readoption of the tariff resolutions of 1901, and supplementing them by a new clause approving the President's trust policy. The reaffirmation of the tariff plank of the previous year was taken to indicate that the Republicans of Iowa, excepting the protectionist faction, would not sanction the use of the tariff to protect trusts in charging higher prices to the American people than they receive for their products in foreign markets. In the Republican platform the administration of President Roosevelt was strongly endorsed, reciprocity with Cuba was advocated, modifications of the tariff "from time to time" were favored, and combinations of capital in restraint of competition condemned.

The Democratic State convention was held at Des Moines on September 3. The majority report, ignoring free silver, was adopted by a vote of 384 to 344. The platform declared in favor of tariff reduction, condemned the Philippine war, and demanded that all monopolies should be driven from American soil. In the tariff plank it was asserted that "the tariff system should be immediately reduced to a revenue basis, as the only one absolutely essential remedy to overcome the trusts;" and "that the Republican party, as now organized, is powerless to revise the tariff downward or curb the trusts it shelters is, we believe, clearly shown by the present attitude of its national leaders."

Elections.—At the regular biennial State election, held November 4, 1902, the officers voted for were secretary of state, auditor, treasurer, and attorney-general. The vote for secretary of state was Martin (Rep.) 229,219; Bourke (Dem.) 149,912. The legislature of Iowa on January 21, 1902, re-elected William B. Allison (Rep.) as United States senator for the full six years' term commencing March 4, 1903, and ending March 4, 1909; and chose Jonathan P. Dolliver (Rep.) to serve out the unexpired term ending March 4, 1907, which was left vacant by the death of John H. Gear (Rep.). Mr. Dolliver was appointed senator August 23, 1900, and took his seat in the United States Senate December 3, 1900. There was no contest in the Republican ranks over either senatorship. The legislature for 1903 will consist as before of 39 Republicans, and 11 Democrats in the senate, and 84 Republicans, and 16 Democrats in the house.

State Officers Serving in 1902 and 1903.—Governor, Albert B. Cummins, elected for two years, term ending January, 1904; lieutenant-governor, John Herriott; secretary of state, William B. Martin, term ending 1905; treasurer, Gilbert S. Gilbertson, term ending 1905; auditors, Frank F. Merriam, term ending 1902; B. F. Carroll, term ending 1905; attorney-general, Charles W. Mullin, term ending 1905; superintendent of education, R. C. Barrett, term ending 1904—all Republicans.

Supreme Court in 1902 and 1903—Chief justice for the year 1902, Scott M. Ladd, and for the year 1903, Charles A. Bishop; associate justices, C. M. Waterman, who resigned and was succeeded on July 1, 1902, by Charles A. Bishop; H. E. Deemer, John C. Sherwin, Emlin W. McClarin, S. M. Weaver, and Scott M. Ladd (in 1903) —all Republicans, except Weaver and Bishop, Democrats.

For Congressional representatives see UNITED STATES (paragraph Congressional Representatives).

IOWA, UNIVERSITY OF, Iowa City, Ia., founded 1855 and reorganized 1860. The student body in 1902 numbered 1512, the faculty and officers of administration 165. The whole number of graduates since the reorganization was 6130. The income of the university had increased to $402,000. The buildings, grounds, and equipments were valued at $653,000. The library contained 63,000 volumes. The re-

quirements for admission to the college of dentistry were raised from one year of high school work to two years, or 16 preparatory credits. For the college of pharmacy, at least one year of high school work, or 8 preparatory credits are now required instead of the completion of the preparatory course. The college year has been divided into two semesters, at the beginning of each of which new classes in all regular first year courses are organized, thus enabling students graduating from the high schools in the middle of the year to enter as regular freshmen without delay. The university now has 210 secondary schools in its accredited list. During the year a series of assemblies were held, which were addressed by members of the faculty or by visitors, and were very popular. Two new buildings for the college of medicine are in process of construction. Physical training has been made compulsory for first and second year students, and has resulted in a revival of interest in athletics on the part of the women students of the university.

IRELAND. See GREAT BRITAIN.

IRELAND, CHURCH OF, has been an independent body since 1871, when the act of disestablishment (1869) became operative, the union with the Church of England having existed since 1800. The governing body of the church, the general synod, meets annually in Dublin. It is constituted of a house of bishops, and a representative house of the clergy and laymen, chosen every three years by the 23 diocesan synods. There are in the Church of Ireland 2 archbishops, 11 bishops, 1200 incumbents, and 360 curates; and a church population estimated at 579,385.

IRON AND STEEL. In the United States, another year of great activity and increased production is to be recorded for the iron and steel industry. There was not only a much greater production than in previous years, but also a demand which was far from satisfied by the output of American works and which had in part to be met by imports on a large scale. The production of pig iron in the United States amounted to 17,821,307 gross tons, an amount equal to the production of England, Germany, and Belgium, the two countries first named coming next after the United States on the list of producers. In Great Britain conditions while generally leaving much to be desired, were a distinct improvement upon those of 1901. This was due in part to the fact that the United States, so much occupied with home consumption, had ceased attempting competition in the markets of the world, leaving to England a large share of the foreign trade. Accordingly the exports of pig iron were about ten times as large as in 1901 and those of steel billets nearly four times as large. The production for 1902 was stated as being about half a million tons in excess of the previous year, when it amounted to 7,761,890 gross tons. Germany and Luxemburg also show an increase in production for 1902 over 1901, when the output was 7,860,893 metric tons. Belgium's contribution to the world's total was about 1,250,000 tons.

Production of Iron Ore in the United States.—The mines of the Lake Superior region continued during 1902 to furnish the greater part of the iron ore used in American furnaces, and their total production amounted to 27,800,000 long tons, or about 80 per cent. of the total production of the United States. This production is an increase of about 25 per cent. over that of 1901, the increase by districts being shown in the following table:

DISTRICT.	1902	1901	DISTRICT.	1902	1901
	Tons.	*Tons.*		*Tons.*	*Tons.*
Mesaba	13,290,000	9,004,890	Michipicoten	298,000	300,000
Menominee	4,409,000	3,605,449	By all rail	450,000	.....
Marquette	3,715,000	3,254,680			
Gogebic	3,558,000	2,938,155	Total	27,800,000	20,889,237
Vermilion	2,080,000	1,786,063			

The mines of this region have experienced great development in recent years and new discoveries of ore are constantly being made. The first important mining in this region was done in 1855, and since that time 220,000,000 tons of ore have been excavated. From 1898 to 1902 the output has doubled, and for the latter year was four times that of 1894, eight times that of 1886, and sixteen times that of 1882. This growth is fairly well distributed among the different mines, and in 1902 there were six producing over a million tons of ore each, while in 1898 there were only six which produced 300,000 each. At that time there were 79 mines in operation, as compared to 120 in 1902. Where the mines are worked from the surface with steam shovels they can be rapidly developed, and the Stevenson mine, which was opened in 1900, shipped during 1902 enough ore to enable it to stand second on the list. The ore coming from this region is much of it low grade and contains comparatively small amounts (40 to 55 per cent.) of iron, but such ore is mixed with that of

higher quality previous to shipping and is accordingly in the form required for the furnaces. There seems to be considerable ore still in sight in this region and explorations are constantly being made to locate new deposits. On the Mesaba range these have been most successful, and it is estimated that in 1902 some 75,000,000 tons of ore were discovered. The mines and ore reserves of the Lake Superior region are now concentrated in the hands of a comparatively small number of owners, chief of which is the United States Steel Corporation. This company in 1902 mined and transported in its own or chartered vessels some 16,000,000 gross tons of ore. It should be said in passing that iron ore forms over two-thirds of the commerce of Lakes Superior and Michigan, and in 1902 it amounted to 24,000,000 tons out of a total of 36,000,000 tons which passed through the Sault Ste. Marie Canal.

Looking now at other iron producing districts of the United States it is necessary to consider the South, and especially Alabama, where some 3,500,000 tons of ore were mined during 1902. This was largely for local consumption, as the furnaces of the vicinity can take care of the greater part of the output. In addition, ore aggregating about 2,400,000 tons was mined in Virginia, West Virginia, Tennessee, Kentucky, and Georgia. The activity in Alabama was shown by the fact that new furnaces were constructed at Thomas and at Ensley, and by the fact that there were at the close of 1902 36 furnaces in blast and 7 idle, as compared with 31 in blast and 10 idle at the beginning of the year. Ore in smaller amounts was also mined in New Jersey, Eastern Pennsylvania, Ohio, Indiana, and other States. The United States Geological Survey in its annual report on mineral resources gives the production of iron ore by States for 1901 and 1900 as follows:

PRODUCTION OF IRON ORES IN THE UNITED STATES IN 1900 AND 1901, BY STATES AND TERRITORIES.

STATE OR TERRITORY.	1900	1901	STATE OR TERRITORY.	1900	1901
	Long Tons	*Long Tons*		*Long Tons*	*Long Tons*
Minnesota	9,834,399	11,109,537	Georgia, North Carolina, and South Carolina	336,186	215,599
Michigan	9,926,727	9,654,067	Kentucky and Iowa	55,057	46,499
Alabama	2,759,247	2,801,732	Ohio	61,016	44,185
Pennsylvania	877,684	1,040,684	Connecticut and Massachusetts	31,185	25,214
Virginia and W. Virginia	921,821	925,394	Maryland	26,223	21,218
Tennessee	594,171	789,494	Missouri	41,366	14,230
Wisconsin	746,105	738,868	Total	27,553,161	28,867,479
New York	441,485	420,218			
Colorado	407,084	404,037			
New Jersey	344,247	401,989			
Montana, Nevada, New Mexico, Utah, Texas, and Wyoming	149,158	234,514			

It must be remembered that during 1902 it was necessary to import iron ore and that the total amount brought into the United States was about 1,200,000 tons. Of this about 60 per cent. came from Cuba, while the remainder was the output of Canada, Newfoundland, and Spain. This ore was used by furnaces on the seaboard or in the east portions of the United States.

Pig Iron.—The output of pig iron in 1902 was greater by some 11 per cent. than that of 1901 and was about double the production of 1896. So great were the requirements of the domestic trade that 625,383 tons (as compared with 62,930 tons in 1901) had to be imported from England and Germany, paying a duty of $4.00 a ton in addition to ocean freights. It was believed that the demand for pig iron during 1902 was about 1,000,000 tons in excess of the possible output of American furnaces. The production for 1902 in comparison with the previous year is shown in the following table:

	1901	1902		1901	1902
	Tons.	*Tons.*		*Tons.*	*Tons.*
Foundry and forge	4,541,250	5,166,568	Spiegeleisen and ferro-manganese	291,461	212,981
Bessemer pig	9,596,793	10,393,168	Total	15,878,354	17,821,807
Basic pig	1,448,850	2,038,570			

The year's production must be considered marvelous in view of the poor facilities for the transportation of iron ore and coke, and the effects on eastern furnaces resulting from the anthracite coal strike. There were 307 furnaces in blast on December 31, 1902, as compared with 266 on December 31, 1901, and 232 on December 31, 1900. The production by States is shown in the accompanying table.

PRODUCTION OF PIG IRON BY STATES.

(Tons of 2240 lbs. each.)

SOUTHERN STATES.	1902	1901	NORTHERN STATES.	1902	1901
	Tons.	*Tons.*		*Tons.*	*Tons.*
Alabama	1,472,211	1,225,212	Pennsylvania	8,117,800	7,343,257
Virginia	537,216	448,662	Ohio	3,631,388	3,326,425
Tennessee	392,778	337,139	New York	401,369	283,662
West Virginia	183,005	166,597	New Jersey	191,380	155,850
Kentucky	110,725	68,462	Illinois	1,730,220	1,596,850
Georgia and N. Carolina	32,315	27,333	Michigan	155,218	170,762
Maryland	303,229	303,186	Wisconsin *	278,987	207,531
Texas	3,095	2,273	Missouri †	269,930	203,409
			All others	15,446	11,828
Total	3,034,574	2,578,864	Grand total	17,821,300	15,878,354

* Including Minnesota. † Including Colorado and State of Washington.

So rapid has been the consumption of pig iron that at the end of the year there was practically none held in storage, the actual stock of manufacturers amounting to 49,951 tons, as compared with 70,647 tons at the close of 1901, and 442,270 tons at the close of 1900.

The production of pig iron is largely carried on about Pittsburg, and this district produces about 35 per cent. of the total for the United States, the Carnegie Steel Company, with its 20 blast furnaces, contributing over two-thirds of this amount. A large number of new furnaces were started during 1902, which when completed and in operation will raise the output of Pittsburg works to 45 per cent. of the entire pig iron production of the country. These new furnaces are of large size and will enable great quantities of ore to be handled at a minimum of cost.

Steel.—The demand for steel in almost every form served to make the year 1902 memorable. The total output was in excess of 15,000,000 tons, two-thirds of which was Bessemer, or converted steel, the remainder being open hearth steel with a certain amount of crucible and other special varieties. The chief event of the year has been the progress made in the erection of new open-hearth furnaces. These plants can be operated successfully by purchasing pig and scrap iron in the open market, whereas a Bessemer plant must be of large size and be operated in connection with blast furnaces and constant and uniform supplies of ore. The increased output due to these new open-hearth furnaces is estimated at between 1,200,000 and 1,500,000 tons. The demand for steel rails during the year was large and the railway construction (6024 miles, according to the *Railroad Gazette*), was the largest for eight years. This together with renewals made active business, and the price of rails remained steady during the year at $28 a ton, enabling the maker to derive a profit of about $10 a ton. The United States Steel Corporation in this department owing to the magnitude of its works with the consequent economies, is able to make a profit considerably greater on this class of steel. There was also an unparalleled demand for finished steel for building, and beams were sold in large lots at $32 a ton. Often, however, the demand was so keen that $50 and $60 a ton was paid for early deliveries. The same condition prevailed as regards plates and the demand for this material, especially for freight cars, is constantly increasing. Sheet steel was not so active during the latter part of the year owing to the large number of mills recently constructed to supply this material. In the field of wire, bars, nails, pipe, etc., there was a uniformly good business.

The following table indicates the average prices for iron and steel prevailing during the year 1902 at Pittsburg:

RANGE OF IRON AND STEEL PRICES IN PITTSBURG, 1902.

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Bessemer pig iron	$16.75	$17.00	$17.50	$20.75	$22.00	$22.25	$22.25	$22.50	$23.00	$24.00	$23.75	$23.50
Foundry No. 2	16.50	17.00	19.00	20.75	21.50	22.00	23.00	23.00	23.00	23.50	23.50	23.25
Gray forge	16.00	16.50	18.00	19.75	20.25	20.50	21.00	21.25	21.50	21.00	21.00	21.00
Bessemer steel billets	27.00	30.00	31.00	32.00	32.50	33.50	32.50	31.00	31.00	30.00	30.00	30.00
Sheets No. 28	3.10	3.10	3.10	3.10	3.10	3.00	3.00	3.00	3.00	2.75	2.75	2.75
Tank plate	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
Steel bars	1.50	1.55	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
Steel rails	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
Wire nails	2.00	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.00	1.90	1.85	1.85
Cut nails	2.05	1.95	1.95	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05
Ferro-manganese, domestic	52.50	52.50	52.50	52.50	52.50	52.50	52.50	52.50	52.50	52.50	52.50	52.50

During 1902 the United States Steel Corporation devoted its energies to com-

pleting and adding to its equipment and works so as to secure greater capacity and economy of operation. In December it absorbed the Union Steel Company which had been formed by a combination of the Union and Sharon Steel companies. This gave the United States Steel Corporation the large blast works of the Union Company at Donora, Pa., and the elaborate plant of the Sharon Company at Sharon, Pa., besides large ore deposits in the Lake Superior region. The price paid was $45,000,000 in bonds secured by mortgages on the property. At these works, which are of the most modern type, it is the intention of the steel corporation to carry on a large part of its wire and nail manufacture. It was stated that by acquiring these properties the steel company had greatly strengthened itself at a possible vulnerable point besides getting possession of valuable and important ore supplies. The United States Steel Corporation also purchased during 1902 the property of the Troy Steel Products Company, and thus secured three blast furnaces, a rolling mill, and a basic Bessemer plant. It was believed at the time of purchase that only the blast furnaces were desired and that they would be used for the production of basic iron for the wire factories at Worcester, Mass. The effect of the policy of the steel corporation continues to be extremely beneficial to the industry at large and these benefits are shared by the independent manufacturers. Prices are maintained steady and unwholesome competition is prevented. The trust has been a steadying influence in the pools and associations for the regulation of prices and has prevented unduly high prices from which a disastrous reaction would have resulted. It has been the policy of the company to so consolidate its works as to reduce the expense of maintenance and to get the plants into the best possible condition.

The year 1902 was one of such prosperity that in the opinion of many similar conditions and profits could not be anticipated for the future. Others, however, maintained that the iron industry was now so firmly established that it could look forward with every possible confidence and that with the diminution of the domestic demand caused by less activity in manufacturing generally, this country by its improved and cheaper processes would be able to export iron and steel products to the markets of the world.

IRRIGATION. In accordance with a recommendation of the President, and the pledges made by both Republicans and Democrats in their national platforms of 1900, a law was passed on June 17, 1902, providing for the reclamation of the arid lands of the West. The bill was opposed upon the score of unconstitutionality and inadvisability by the leading Republican representatives of New York, Pennsylvania, Ohio, Illinois, Iowa, and other States east of the Mississippi, and was finally passed only as a means of party harmony. It was said by the opponents of the bill that it was an opening wedge to unlock the treasury doors to endless demands that the West might make upon it; that the transcontinental railroads were engineering the bill, hoping for the increase of their traffic by the enhancement of land values; that the bill if effective in reclaiming arid lands would injure the agriculturists of the East; finally that as the bill was intended to aid only one section of the country it constituted class legislation and was unconstitutional. To these criticisms the advocates of the bill replied that the sums appropriable were definitely limited in the act; that the aid of the railroads did not affect the merits of the bill; that no harm would come to eastern farmers since very different crops would be raised on these western lands, and that it was no more improper for the government to aid interstate industries by means of irrigation works than for it to aid interstate commerce by river and harbor works.

The bill as finally enacted and the reasons for its several sections as stated by its advocates were as follows:

1. All moneys received from the sale of public lands in Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington, and Wyoming, beginning with the fiscal year ending June 30, 1901, excepting the allowances to registrars and receivers of land offices, and the 5 per cent. of the land receipts due to the several States and Territories for the support of agricultural colleges, are directed to be placed in a special fund of the treasury, to be known as the "reclamation fund," to be used for the survey, construction, and maintenance of irrigation works and for the storage and diversion of waters for the reclamation of the arid and semi-arid lands of the West.

In case the receipts from the sale of other public lands than those specified above be not sufficient for the support of agricultural colleges under the act of 1890, providing for the more complete support of State colleges as established under the provisions of the Morrill act of 1862, then the deficit shall be supplied from funds in the general treasury. The public lands affected by the law amount to about 535,000,000 acres, or one-third of the entire area of the United States proper, or two-thirds of the western half of the United States. The proceeds from the sale

of public lands for the fiscal years 1901 and 1902 amounted to somewhat over $6,000,000, and this sum would become the nucleus of the reclamation fund.

To show more clearly the extent of the reclamation fund and its geographical division, the following figures may be given, showing the income from the sale of public lands for the fiscal year 1901 in each of the arid States and Territories: Arizona, $42,586.16; California, $205,030.40; Colorado, $252,277; Idaho, $206,449.94; Kansas, $20,182.22; Montana, $367,130.10; Nebraska, $103,040.49; Nevada, $9,008.61; New Mexico, $75,091.83; North Dakota, $449,025.43; Oklahoma, $370,427.13; Oregon, $364,761.47; South Dakota, $113,475.22; Utah, $98,329.22; Washington, $257,046.22; Wyoming, $206,863.87; making a total of $3,140,725.31.

2. The secretary of the Interior, who is charged with all the administrative authority given under the act, is directed to survey and construct irrigation works and to report annually to Congress. The irrigation works authorized include canals reservoirs and artesian wells and it was expected that the secretary would at once make extensive surveys, utilizing the results of such preliminary work as had already been done by the government, with a view to determining the most feasible and practicable as well as the most urgent irrigation projects required.

3. The secretary is directed to withdraw from public entry all public lands required for irrigation works, and also to accept as homestead entry all lands proposed to be irrigated. The lands left open to homestead entry cannot be apportioned to one individual in lots of less than 40 acres or more than 160 acres, and shall moreover be subject to all the special conditions and stipulations of the irrigation act.

4. Contracts for the construction of irrigation works may be made by the secretary only when there is sufficient money in the reclamation fund, and the area of public lands to be allotted to each entryman is to be determined, within the limits of from 40 to 160 acres, by the secretary as appears to him reasonable. The secretary also is to determine what charges in repayment for the irrigation of his land shall be paid by the entryman, and what charges shall be borne for the irrigation of their land by any private owners of land. In all cases the charges are to be determined with the view of returning to the reclamation fund the estimated cost of constructing the irrigation works; but in all such construction eight hours is to constitute a day's work and no Mongolian labor can be employed.

The land that an entryman may obtain is limited to a maximum of 160 acres in order to prevent large holdings, and the object is, so far as possible, to attract actual settlers of small means who, under existing circumstances, with nearly all arable land in the United States already occupied, find themselves homeless.

The provision excluding Mongolian labor was made with the purpose of providing settlers with work pending the irrigation of their lands. Naturally some portions of the lands to be irrigated will be found already in private ownership; and, as it would be unjust to deprive such owners of the advantages of irrigation, it is directed that they shall be entitled to the benefits thereof upon payment of their due share of the cost. But as will be seen in the following section, effort was made to prevent large private holdings and to break up those large private holdings already existing by enacting that the secretary shall not sell water rights to any private owner for more than 160 acres.

5. Before an entryman may obtain patent for his land he shall reclaim at least one-half of the total arable area of his entry and pay to the government all charges apportioned against him. These charges are to be paid in annual installments, not exceeding ten, and are based on the cost of irrigation. No right to the use of water can be sold to private owners for tracts exceeding 160 acres, and no sale shall be made in any event unless the land owner shall be a bona fide resident or occupant.

6. When payments shall have been made upon the major portions of the lands made arable from any one irrigation work, the secretary is authorized to transfer to the owners of such lands the management and operation of the works, reserving to the government, however, the title to and management of all reservoirs. This provision follows the usual custom of transferring irrigation works to the owners of the land irrigated; but on account of their extreme importance to the large class of water users affected, storage reservoirs are to be retained by the government.

7. The secretary is authorized to acquire any necessary land by purchase or by condemnation under judicial process.

8. It is directed that the rights already obtained by owners under State and Territorial laws shall not be disturbed by this act, and that in general the secretary shall proceed in conformity with such laws; with this important exception, however, that the right to the use of water acquired under the act shall be appurtenant to the land irrigated, and that beneficial use "shall be the basis of the measure and the limit of the right." The customary policy of Congress in conforming with local laws is observed by this section so far as possible. It is believed that by such conformity the States will be stimulated to enact more equitable water laws than they

have done, and that through the provision that water rights shall be appurtenant to the land those States will repeal any laws that have hitherto allowed a vested interest in the water right.

9. The secretary is directed to expend in each State and Territory so far as possible, the sums derived from the sale of public lands in that State or Territory; and in every expenditure, the net expenditure in any State or Territory as measured by such sales is directed to be equalized within each ten-year period. Each State will be inclined strongly to insist that money derived from the sale of lands within its borders shall be expended therein; and while from the interstate nature of the work it was impossible to observe this desire entirely, it was intended to do so as far as possible.

Under this act, the estimated construction cost of works must be returned to the reclamation fund by those using the water, but there is no provision for the repayment of money expended in maintaining and operating works so long as they are in the hands of the government. This may be an indefinite period. If the major portion of the land to be benefited by any particular work should never be sold, the works could apparently be operated permanently free of cost to water users.

The work thus far done in carrying out the purposes of this act has been confined to surveys and examinations of different projects. Investigations are being carried on to arrive at an understanding of the scope of the work to be done and the conditions which will govern the expenditure of money and the disposal of works to settlers. Although no projects have been definitely located, the law has already produced a marked effect on western settlement and land values. There has been a great increase in immigration and a rush to file on public land. It is claimed that a large number of these filings are speculative, and the President in his annual message recommended the appointment of a commission to investigate and report upon the questions involved in the disposal of public lands.

The rapid rise in the value of agricultural products and irrigated land in the arid West during the past year has caused renewed activity in irrigation construction by private enterprise. The active competition for the control of water as well as land has increased filings on streams and litigation over water rights. The danger to future development which this threatens has aroused public sentiment in several arid States to the need of a reform in irrigation laws which will secure more satisfactory results in the settlement of water titles. A committee of the California Water and Forest Association in California has drafted a bill for submission to the legislature which meets this winter. A committee of the Engineers' Association of Montana has drafted an irrigation code for submission to the legislature of that State, and similar legislation is being considered in Utah and Nevada.

The subject of rights to the water of interstate streams has attracted increased attention during the past few months through the beginning of a suit by the State of Kansas against the State of Colorado in the United States Supreme Court to determine the respective rights of these two States to the waters of the Arkansas River. The facts leading up to this litigation are as follows: The Arkansas River rises in Colorado and derives nearly all its water supply from the mountains at its head. Leaving Colorado, it flows for 200 miles through Kansas, finally emptying into the Mississippi. In this litigation it is claimed by Kansas that the construction of ditches and the diversion of the water in Colorado has reduced both the underground and surface supplies in Kansas, causing great hardship and loss to settlers. These allegations are denied by Colorado, and the issue is now as to the facts.

In this litigation a number of perplexing issues are involved. The Arkansas is a navigable stream. On the upper part of its course, riparian rights are abrogated; on the lower part of its course, they are recognized. Among the questions, therefore, are the respective rights of appropriators for irrigation in the two States and the respective rights of parties claiming water under the riparian doctrine and the doctrine of appropriation.

The building of reservoirs has been the most marked feature of construction during the past year. High-priced crops, as a rule, require irrigation late in the season, and this, on many streams, can only be supplied through the storage of the floods which run to waste in the spring. The construction of these works has, as a rule, proven profitable to their builders and added greatly to the value of the lands and products. Sugar beets, potatoes, fruit, and other special crops requiring intensive culture are taking the place of grain and hay crops. This line of development has been especially marked in Colorado, where a number of large reservoirs have been built and several sugar beet factories erected within the year.

The volume of water made available for irrigation by means of pumps has been greatly increased during the past year. This is especially true of the rice-growing sections of Louisiana and Texas and many of the fruit-growing districts of California. Many small pumps were also put up by farmers throughout the South and middle West in order to supply water for market gardens or small areas. In

some places these pumps serve the double purpose of drainage and irrigation. Water is pumped from land which is too wet and used on land which needs moisture. In California the increase in pumping has given rise to litigation regarding rights to underground supplies, and with further development there seems likelihood of both litigation and legislation to settle the questions thus created.

No large enterprises have been carried out during the year, but there has been a steady growth in all the States. The State engineer of Colorado estimates the increase in the irrigated area in that State at 200,000 acres. The State engineer of Wyoming reports for the two years ended November 30, 1902, the issue of 1324 permits for new canals, the estimated cost being $1,638,000, and the area to be irrigated 677,000 acres. Permits were issued for enlargements of existing canals to cost $202,000, the water to be used on 159,000 acres. The State engineer of Nebraska reports for the year 1902 the issue of fifty permits for new canals and a number of enlargements. The area to be watered from canals completed during the year is reported at 15,200 acres. The farmers of the Jordan Valley in Utah have established a pumping plant at the outlet of Utah Lake to relieve the scarcity of water in that valley. Their plans include the enlargement and extension of their canals, and the reclamation of large areas of desert land. The same activity extends to the other arid States, but statistics are not available.

The additions to irrigation literature during the year include a number of reports by State engineers and by the Agricultural and Interior Departments of the government. The Office of Experiment Stations in the Department of Agriculture is studying the engineering, legal, and social phases of irrigation, while the United States Geological Survey of the Interior Department has charge of stream measurements and the location and construction of works under the national irrigation law.

There has been a great increase in the publications on irrigation in newspapers and magazines. A few books have also been published, among which are: *Irrigation in the United States*, by F. H. Newell, T. Y. Crowell & Co., New York; *Irrigation Farming*, by Lucius Wilcox, the Orange Judd Co., New York; *Irrigation Institutions*, by Elwood Mead, the Macmillan Co., New York. The most notable development in foreign countries is the completion of the Assuan Dam (see DAMS) in the Nile by the Egyptian government. Previous to the federation of the Australian provinces, each province enacted its own irrigation laws. Since the federation, the unification of these laws and the settlement of interstate rights have proved a most perplexing matter. This is particularly true regarding the use of the Murray River which forms the boundary between the provinces of Victoria and New South Wales. The respective interests of these two provinces in this stream are now being looked into by a governmental commission. See VICTORIA.

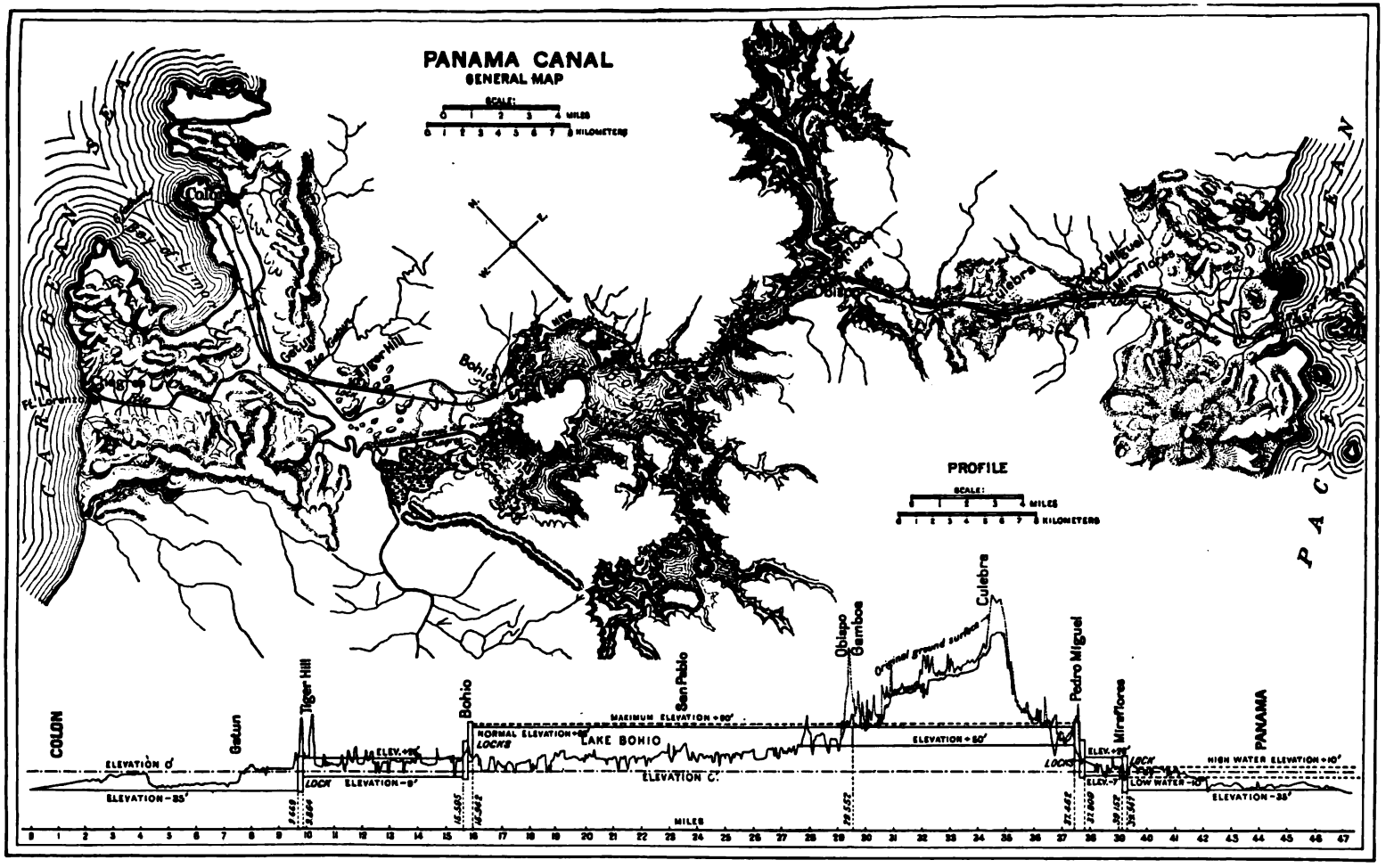
ISHAM, EDWARD S., a prominent lawyer of Chicago, died February 17, 1902, in New York City. He was born January 15, 1836, in Bennington, Vt., graduated at Williams College in 1857, and was admitted to the bar in Vermont and Illinois. In 1858 he entered the office of Hoyne, Miller & Lewis in Chicago. The following year he formed a partnership with James L. Stark, and in 1872 went into partnership with Robert T. Lincoln, the son of President Lincoln. Since 1884, through the admission of a third partner, the firm has been known as Isham, Lincoln & Beale. In recent years his practice was confined to the higher courts, and embraced many cases of importance in constitutional law. He served for many years in the Illinois legislature, in which he was a member of the judiciary committee.

ISTHMIAN CANAL. On January 4, 1902, the Panama Canal Company offered to sell its abandoned works on the Isthmus of Panama, together with all its rights and titles to lands and harbor privileges for $40,000,000—the valuation put upon the property by the American Canal Commission, appointed in 1901. The Panama Canal Company had previously set a price of $109,000,000 upon their property rights—an absolutely prohibitive figure. On January 8 the House, by a vote of 308 to 2, passed a bill providing for the construction of the Nicaragua Canal at a cost of $180,000,000. The Morris amendment, leaving the choice of route with the President, was voted down 170 to 120. The arguments in favor of the amendment were: (1) A first cost of but $184,233,358 for the Panama Canal, as against $189,864,062 for the Nicaragua Canal, and a saving of $1,300,000 a year in cost of maintaining the Panama Canal according to the commission. (2) Natural harbors at Panama and Colon, while equally good harbors at the terminals of the Nicaragua Canal would cost $5,000,000. (3) The advantage of having an alternative during the negotiations with Isthmian republics. (4) Consideration for French stockholders. The arguments for the Nicaragua route were: (1) The uselessness of the Panama route for sailing vessels. (2) The remoteness of the Panama route. (3) Distrust of the Panama lobby. (4) The need of new negotiations with Colombia for permanent concessions, and the difficulty of treating with a government likely to be overthrown at any moment. Upon receipt of the Panama Company's tender, the Canal Commission prepared a supplemental report, which they transmitted to President Roose-

velt January 20, 1902, recommending that the offer of the company be accepted. The commission estimated that the Nicaragua route is one or two days shorter for steamships between the eastern and the western coast of the United States, while the Panama route is one or two days shorter for vessels between the eastern coast of the United States and the western coast of South America. The amount of traffic by the Nicaragua Canal would not be enough greater to offset the greater cost of maintenance.

During February the attention of Congress was called to the Darien-Mandingo sea-level canal to be constructed by private capital backed by a government guarantee. It was claimed that this route is only 29½ miles long—as against 49.09 miles for the Panama and 183.66 miles for the Nicaragua Canal; good deep-water harbors exist on both sides; no curves, dams, or locks are necessary; and all difficulties of controlling flooding by rivers would be avoided. It would be necessary, however, to tunnel through the mountains for a distance of five miles, but outside the tunnel there would be no cuts deeper than 8 to 15 feet. The projectors estimated that the canal could be finished in four years for less than $100,000,000. The Canal Commission in 1901 rejected the route as impracticable, and put the cost of construction at $289,000,000. Neither Congress nor the country seriously considered this route. It was charged that the trans-continental railroad interests which are opposed to any canal, were backing the Panama route, simply as the most feasible way of blocking all action. It was also asserted that the franchise obtained by the French company was illegally granted by the Colombian president, and would be worthless even if the present government should be able to suppress the revolution and prolong its precarious existence for a few months until the next revolution. The deadly climate of Panama was urged as another and well-nigh unanswerable objection to that route. After due deliberation, however, the Senate agreed upon a compromise measure introduced by Senator Spooner, which was accepted by the House and approved by President Roosevelt, June 28, 1902. While this act was looked upon generally as a victory for the advocates of the Panama route, and as practically assuring that the canal would be built by that route and not across the state of Nicaragua, nevertheless it held out to the supporters of the latter route enough hope if, for any reason the negotiations with Colombia should fall through, to secure their support. As a piece of legislation satisfactory to both parties, it was therefore heralded in the press as a particularly successful compromise. However, as the matter stood at the time, it was evident that the mere passage of an act authorizing the provisional construction of a canal at Panama did not by any means settle the matter, as there still remained the possibilities that the French title to the canal was invalid, that Colombia would refuse to accept the terms of the United States, or that, after all other objections had been overcome, the treaty with Colombia would be defeated in the United States Senate by the opposition of the Nicaragua advocates.

Isthmian Canal Act.—By this act the construction of an isthmian canal was authorized; by the Panama route if that should prove feasible, otherwise by the Nicaragua route. The act empowered the President, if he could obtain a satisfactory title thereto, to acquire for the United States, at a cost not exceeding $40,000,000, all the rights, franchises, and concessions, and all the real and personal property, including at least a controlling share in the Panama Railroad Company, of the New Panama Canal Company, of France. Similarly the President was authorized to acquire for the United States from the Republic of Colombia, on such terms as he considered reasonable, perpetual control and jurisdiction over a strip of land not less than six miles wide and extending from the Caribbean Sea to the Pacific Ocean. On this strip of land the United States was to be enabled to operate the Panama Railroad, to construct, operate, and protect a canal, and to retain jurisdiction over its terminal ports. Further rights and territory, useful to the general purpose of the canal, might be obtained by the President from Colombia in his discretion. The canal to be constructed was to utilize so far as possible the work of the New Panama Canal Company, was to be of sufficient capacity for vessels of the largest existing tonnage, or of the largest tonnage that could be reasonably anticipated. Commodious terminal harbors were to be provided, safeguarded by adequate works of defense. If the President was unable to obtain title from the New Panama Canal Company, and to get the desired concessions from Colombia "within a reasonable time and upon reasonable terms," then he was authorized to secure territory from Costa Rica and Nicaragua for the construction of a canal by the Nicaragua route. This canal was to have the same specifications as the other, and was to utilize the San Juan River and Lake Nicaragua so far as they were available. For the construction of a canal, by either route, an Isthmian Canal Commission was created, to consist of seven members appointed by the President with the consent of the Senate. Of the seven members at least four were to be expert engineers, and of these four at least one was to be of the United States army and one of the navy. Ten



PANAMA CANAL—General Map and Profile

million dollars, besides the $40,000,000 contingent upon acquiring the New Panama Canal Company, was appropriated for preliminary expenses, and the President was authorized, upon the final determination of the route, to enter into construction contracts aggregating $135,000,000 additional in the case of the Panama route, and $180,000,000 additional in case of the Nicaragua route. To meet these contracts the secretary of the Treasury was authorized to borrow $130,000,000, issuing therefor, at not less than par, 2 per cent. bonds, redeemable in ten and payable in thirty years. The bonds were to be issued in denominations of twenty dollars or their multiples, and were to be offered as a purely popular loan, no commissions being "allowed or paid thereon." This act answered the imperative demand of the American people for a canal across the isthmus, but it threw the heavy responsibility of selecting the route upon the President and his advisers.

Title to the Panama Canal.—In accordance with the power invested in him by this act of June 28, 1902, President Roosevelt instituted inquiries into the legality of title possessed by the French Panama Canal Company, and its ability to transfer legal possession to the United States, and ordered the attorney-general to investigate the matter. Attorney-General Knox stated in an opinion given out October 25, 1902, that the new Panama Canal Company of France could give the United States title to its property and partially built canal across the isthmus in the Republic of Colombia. This opinion proceeded from the history and laws governing the new Panama Canal Company, which were virtually as follows: In 1878 a contract was entered into between the Republic of Colombia and the Civil International Inter-Oceanic Canal Company for the construction of an isthmian canal and its operation for 99 years. The lands necessary for the construction were granted by Colombia during the life of the concession, certain annual payments were to be made Colombia, the canal was to be neutral, and the concessionaire might transfer its rights, but could not cede or mortgage them to a foreign government. The concessionaire did transfer its rights in 1879 to M. Ferdinand de Lesseps, founder of the Universal Company of the Interoceanic Canal of Panama, commonly called the old Panama Canal Company, and this company proceeded upon the work of construction until 1888, when it became bankrupt and was in 1889 placed in the hands of a liquidator. The liquidator, under authorization of the courts, in 1894 turned over the assets of the old company, including provisionally a large majority of shares in the Panama Railroad Company, to another company called The New Panama Company; the old company in return for its assets to receive 60 per cent. of the profits from the canal. On January 9, 1902, the new Panama Canal Company offered to sell its rights and property on the isthmus, and its archives in Paris, to the United States government for the sum of $40,000,000. This offer had been authorized by vote of the general meeting of the stockholders, subject however to future ratification by them, had been consented to by the liquidator, and the official representative (*mandataire*) of the bondholders of the old company, and had been approved by the civil tribunal of the Seine, which, under a special law of parliament in 1893 regulating the liquidation of the old company, was required to pass upon all acts of the liquidator, tending to alienate the assets of the company. On suit of one of the bondholders of the old company, asking that this approval be reversed, the civil tribunal held on July 3, 1902, that the plaintiff had no cause for action since under the law of 1893 he was represented by the mandataire, and that he could not question the right of the New Panama Company to sell since he had no legal relation with that company. This decision upon the same reasons was affirmed by the Court of Appeals of Paris on August 5, 1902.

Now under these ruling conditions it was queried in America whether the title given to the United States government, in case it purchased, would be valid, and to determine this a special investigation was made in Paris, first by special attorney Charles W. Russell, and later by the attorney-general in person. Negatively stated, the main questions considered, were as follows: (1) The new Panama Canal Company had not power to sell the property. (2) The liquidator of the old Panama Canal Company had not power to assent to the sale. (3) The French courts had not power, either as to the liquidator or as to the new company, to authorize the sale. (4) The property, if taken over by the United States, would be subject to the total outstanding obligations to the stockholders, bondholders, and other creditors of both companies. (5) The purchase could not validly be made under the congressional act of 1902 which authorized purchase from the New Panama Canal Company only and not from the liquidator of the old company. The reasoning and conclusions arrived at by the attorney-general as to these objections were: (1) The New Panama Canal Company is an anonymous partnership of a non-commercial kind, subject by a special law of 1893 to an act concerning commercial associations passed in 1867, and to the commercial code and customs of commerce. Such a company may, unless a third party intervenes as a prior creditor, sell its property as might any private merchant. Now the third party in this case, the old Panama Canal Company to

whom the new company had promised 60 per cent. of its anticipated profits, was also a private partnership, though outside of the law of 1867 and the commercial code and customs of commerce, and amenable only to the civil code. The old company was entirely competent to release the new company and having done so the latter could dispose of its property at will. But though the new company could thus sell its property it ought still to be shown that the "general meeting" of the stockholders of the new company had power to offer its property as it did. This power, however, follows from the by-laws of the company, made by the founders or original stockholders, which permit the general meeting to amend the by-laws in such a way as to make the sale legally binding. (2) With regard to the powers of the liquidator of the old company, it should first be noted, as stated above, that the civil tribunal of the Seine in a decision affirmed by the Supreme Court of Paris, decided that the liquidator had authority to assent to the sale. In general, however, the liquidation of non-commercial partnerships formed prior to 1893, not being specifically arranged for by law, are regulated by the courts in much the same way as if they were commercial bodies organized after 1893. A liquidator is commonly appointed *ex necessitate* because with a large number of partners unanimity of agreement is practically unattainable. Following this precedent, a liquidator was appointed by the court in 1899 for the old Panama Canal Company and was vested with extensive powers, among which was that of ceding or contributing to any new association the whole or part of the old association's assets. But if the liquidator could contribute the company's assets and thereby rather continue than dissolve the company, he could certainly perform the ordinary liquidator's duty of realizing upon the company's assets; as agreeing, for example, to the sale of the property to the New Panama Canal Company. Aside, however, from these general principles of law, the special act of the French parliament in 1893, expressly recognized and sanctioned the power of the liquidator to alienate the assets of the company and at the same time authorized the lower courts to approve or disapprove the particular measures which the liquidator might take in pursuance of this grant of power. (3) The French courts did not authorize the New Panama Canal Company to sell its property; for that company was an active, solvent concern, and needed no judicial authorization. The courts did, however, approve the liquidator's consent to the sale and to question the validity of that approval is to question the validity of the special law of 1893, under which it was made. The law has, in fact, been criticised as being in violation of fundamental rights, but it is "if anything defective in regarding too much the rights of individuals," and in any event "authority to declare a law, regularly passed and proclaimed ineffective, has not been found to exist in the French courts." (4) The objection that the United States if it took over the property would be responsible to the creditors of both the old and the new company, is found to be unsound. As relates to the creditors of the new company, the stockholders are bound by the action of their representatives in the general meeting who offered the property for sale, the company has no bondholders, and the small claims of the general creditors may be paid before the completion of the sale. So far as the old company is concerned, "it is not perceived how there could be any law or equity for subjecting a purchaser of an article sold as assets of a failing partnership to the debts of the partnership. If that were the law, there would be no purchasers of such assets, the creditors would receive no payment of their debts out of the proceeds nor the stockholders any dividend of a residue." It would not follow, however, that the property bought, as distinguished from the company bought from, might not be affected by definite liens diminishing its value. To ascertain if such were the case, an exhaustive investigation was made into all actual or possible judgments, liens, and mortgages upon the property. From this it appeared that the seemingly simple process of mortgaging the real property of the company in Colombia had never been resorted to; probably because the popularity of the enterprise in France had permitted bonds to be floated without difficulty until just before the collapse of the company and because, also, title to the Colombia lands had never been put into final form. But, if any apprehension was still felt, all danger of future litigation could be avoided by inserting in the treaty which it would be necessary to make with Colombia, a clause to the effect that the United States and the property purchased by it could not be proceeded against in the courts of Colombia without the consent of the United States. (5) The objection that Congress had authorized purchase from the new Panama Canal Company and not from the liquidator of the old, was found to be unreasonable because (1) the purchase was in fact from the new company, the liquidator merely waiving rights as to the property transferred, and because (2) even if this were not so, and the liquidator had joined with the new company as vendor, it would be contrary to frequent decisions of the Supreme Court of the United States, to hold a law abortive for a technicality, and notwithstanding its plain intent which in this case was to obtain title from the owner, whomsoever, of certain

SCENES ON THE PANAMA CANAL—(Upper) A Section of the Canal to-day
(Lower) A Cut in the Cordilleras

specified property. For these reasons the attorney-general was of opinion "that the United States would receive a good, valid, and unincumbered title" to the property offered by the new Panama Canal Company.

The Treaty with Colombia.—No sooner had the doubt about the validity of the French title been satisfactorily disposed of than a new difficulty arose in the shape of an apparent disposition on the part of Colombia, through its representative at Washington, to refuse to accept the terms offered by the United States in the treaty then pending, which provided for the surrender by Colombia of control over the territory traversed by the canal. In May, 1902, while the Isthmian Canal Bill was still before Congress, Mr. Hay, the secretary of state, sent to both Houses copies of the prospective treaties concerning the canal which had been submitted to both Colombia and Nicaragua. The stipulations in the proposed treaty between Nicaragua and the United States were as follows:

(1) Nicaragua leases in perpetuity to the United States the exclusive right to build and operate a canal through its territory and the United States shall guarantee the sovereignty, independence, and territorial integrity of the Republic of Nicaragua.

(2) A strip three miles on each side of the route selected shall be known as the canal district, and areas of lands and waters within that district shall pass into the possession, use, and control of the United States, without cost or charge. Damages arising from the building of the canal shall be ascertained by a joint commission and their awards shall be paid by the United States.

(3) The sovereignty of Nicaragua shall continue over the canal district, but the United States may enforce peace and order by the use of its forces.

(4) Free ports shall be established at the terminals of the canal and no discrimination shall be made as to tolls.

(5) The canal shall be opened to all nations, shall never be blockaded, war vessels of a belligerent shall not remain in the canal more than twenty-four hours, shall not revictual in the canal, nor shall a belligerent disembark troops or munitions of war in the canal.

(6) The United States shall pay and discharge Nicaragua from all liability on account of claims of citizens of the United States arising prior to the signing of the treaty.

(7) The United States shall pay $6,000,000 and an annual rental of $25,000 as compensation for the privileges granted.

The treaty with Colombia as submitted by Secretary Hay provided:

(1) That the government of Colombia authorizes the New Panama Canal Company to sell its rights to the United States.

(2) The United States shall have the exclusive right to construct and operate the canal.

(3) The United States shall have a zone five kilometres wide for the canal, for a period of 100 years, with the privilege of renewal, the zone to be neutral territory guaranteed by the United States, a joint commission created by the United States and Colombia to enforce sanitary and police regulations.

(4) The sovereignty of Colombia to be maintained over the territory of the canal.

(5) Lighthouses, ports, and other aids to navigation to be constructed by the United States, also hospitals, and necessary aqueducts and drainage works in Panama and Colon.

(6) Colombia will not cede or lease to any foreign government any of its islands or its harbors that might interfere with the use or the safety of the canal and to enable Colombia to carry out this stipulation the United States shall give to Colombia the material support that may be necessary.

(7) Damages arising from the construction of the canal shall be appraised by a joint commission, to be paid by the United States alone.

(8) The ports at either end of the canal shall be free, and dues in the canal equal for all nations.

(9) No taxes shall be imposed on the property used in constructing the canal.

(10) The canal shall be neutral in perpetuity.

(11) Forces necessary to protect the canal shall be provided by Colombia, but if she cannot effectively do so, she may call on the United States to do so.

(12) The United States shall begin work on the canal in two years after the exchange of ratifications of the treaty.

(13) For any privileges granted the United States shall pay Colombia $7,000,000, and after fourteen years a reasonable annuity, to be fixed by arbitration if necessary.

(14) This concession shall lapse if in five years the United States shall not have begun the construction of the canal nor completed it within the period allowed (twenty-four years).

Public opinion in the United States was strongly opposed to the building of a

canal through foreign territory, and the press loudly demanded the purchase outright of a strip six miles wide on each side of the canal, or better yet, the acquisition of the whole state of Panama. But even the liberal terms proposed by Secretary Hay were not sufficient to satisfy the representative of Colombia. On November 25, Señor Concha, Colombian minister at Washington, informed Secretary Hay that he could not accept, on behalf of Colombia, the terms offered by the United States. It appeared that the concessions granted to the French canal company were to have expired in 1904, but were subsequently extended to 1910. It was rumored that Colombia intended to declare the extension void, and either construct the canal herself or take possession of the canal property and sell it to the highest bidder. Negotiations were broken off for the time, and attention was fixed upon the Nicaragua route, but the governments of Nicaragua and of Costa Rica were disposed to take advantage of the circumstances, and announced that the existing treaties between them and the United States would not be renewed upon expiration. It was generally believed that Señor Concha was not sincere in his opposition, and intended to hold up the whole project for his own profit. Later he was recalled by his government because of his attitude in the affair. Negotiations were then renewed with Señor Herrara, chargé d'affaires of Colombia at Washington, but at the end of the year, the matter was still unsettled. Colombia had finally consented to the lease of a neutral zone on the terms proposed by the United States. It was also arranged that the Panama Railroad, which, under existing agreements, would become the property of Colombia after sixty years, should revert to the United States at the expiration of that term. The point of disagreement was the question of payment. It was agreed that the annuity, instead of being increased at periods of fourteen years, should be fixed at the rate determined upon in the treaty, but the United States was unwilling to pay more than $10,000,000 down and an annuity of $100,000 or $125,000, while Colombia demanded $600,000 annuity. Again charges of corrupt lobbying by the transcontinental railroads, to defeat any canal, were rife. The railroad across the Isthmus of Tehuantepec is a very important factor in the situation, as when its terminal harbors are improved, it will be a convenient route between the eastern and western seaports of the United States. The sentiment of the country was decidedly against submitting to any obstructive device on the part of the Isthmian republics even though the canal should be delayed several months.

ITALY, a constitutional monarchy of southern Europe comprising the Apennine Peninsula, and the islands of Sicily and Sardinia. The capital is Rome.

Area and Population.—The aggregate area is 110,674 square miles, and the population, according to the final results of the census of February 10, 1901, was 32,475,253, an increase of over 14 per cent. since 1881. Racially the population is remarkably homogeneous, the only elements of importance beside the Italian, being the Albanian, French, and Greek. The populations of the principal cities (1901) were: Naples, 563,731; Milan, 491,460; Rome, 463,000; Turin, 335,639; Palermo, 310,352; Genoa, 234,800; Florence, 204,950; Bologna, 152,009; Venice, 151,841. The inhabitants are almost entirely adherents of the Roman Catholic religion, which is nominally the state religion, but complete freedom of worship prevails. Public schools of every grade are maintained by the state, the provinces, and the communes, attendance in the primary grades being nominally compulsory. Hitherto the educational system has been neither well organized nor well regulated, but there has been decided improvement in the last year.

Government.—The present constitution of Italy is an expansion of the Sardinian fundamental statute of 1848. By its provisions the executive power is vested in the sovereign, by whom it is exercised through a cabinet of responsible ministers. The legislative authority is vested jointly in the king and a parliament, consisting of two chambers, a senate and a chamber of deputies. The senate, containing 348 members in 1901, consists of the adult princes of the royal house and an unlimited number of members named by the crown. The chamber of deputies is composed of 508 members elected for five years by what is practically universal suffrage. The king has power to dissolve the parliament, but is required to convoke it annually. All money bills must originate in the lower chamber. The ruling sovereign is King Victor Emmanuel II., who succeeded to the throne on the death of his father, Humbert I., July 29, 1900. The ministry in 1902 was constituted as follows: Premier, without portfolio, Zanardelli; interior, Giolitti; foreign affairs, Prinetti; treasury, di Broglio; finance, Carcano; justice and ecclesiastical affairs, Cocca-Ortu; war, Ponza di San Martino (later General Ottolenghi); marine, Morin; commerce, industry, and agriculture, Baccelli; public instruction, Nasi; public works, Giusso; posts and telegraphs, Galimberti.

Army and Navy.—The army of Italy, recruited by a system of conscription, consists of the permanent regular army and the mobile and territorial militias. Personal military service is obligatory on all able-bodied citizens between the ages of

twenty and thirty-nine. The terms of service differ for different categories from two to five years with the colors, and from fourteen to seventeen years in the reserve or in the militia. In 1902 the army on a war footing numbered 3,323,446 officers and men, divided as follows: Officers (all categories), 36,342; permanent army, 756,771, of whom only 264,516 were serving with the colors; mobile militia, 307,696; territorial militia, 2,222,637. The Italian navy, which is considered of great effectiveness, consisted in 1902 of 2 first-class battleships, 3 second-class battleships, 8 armored cruisers, 4 third-class battleships, 12 protected cruisers, and a large number of torpedo gunboats, destroyers, and small torpedo boats. In addition there are two first-class battleships and several armored and protected cruisers in process of construction, and it is proposed to begin work on three battleships of the first class in 1903. The programme of naval construction will entail an expenditure, by the year 1912, of 389,000,000 lire.

Finance.—The monetary standard is gold, and the unit of value the lira, worth 19.3 cents. The principal sources of revenue are direct and indirect taxes, state enterprises, and monopolies. The budget estimates for the year ending June 30, 1902, placed the revenues at 1,811,924,509 lire and the expenditure at 1,790,959,779 lire. For that year the estimated revenues from the various sources were as follows: Income tax, 290,715,000 lire; customs, 211,050,000 lire; tobacco monopoly, 201,000,000; excise, 103,000,000; land tax, 100,840,000; and house tax, 89,400,000. The principal items of expenditure, according to the same budget were: Public debt, 660,111,901 lire; army, 268,953,132; navy, 122,816,540; instruction, 49,111,699; public works, 92,327,725. The budget for the fiscal year ending June 30, 1903, set the revenues at 1,825,668,501 lire and the expenditure at 1,812,363,541 lire, of which 170,831,011 lire were extraordinary. The national debt amounted, in 1900, to 12,645,289,334 lire; the amortization for the year 1902 was only 2,492,830 lire. A bond issue of new 3½ per cent. stock to the value of 100,000,000 lire at .96, intended to replace part of the floating treasury debt was announced in June, 1902.

Production and Industry.—Over 70 per cent. of the area of Italy is productive, and more than three-fifths of the laboring population is engaged in agriculture, but methods of cultivation are very antiquated. The principal products are wheat, maize, barley, rice, wine, olive-oil, tobacco, and fruits. The wheat crop in 1901 was estimated at 52,000,000 hectolitres (one hectolitre = 2.838 bushels), as compared with 45,030,000 hectolitres in 1900. Other figures for production, for the year 1900 were: Maize, 30,400,000 hectolitres; rice, 5,950,000 hectolitres; wine, 29,900,000 hectolitres (one liquid hectolitre = 26.417 gallons), as compared with 32,500,000 hectolitres in 1899; olive oil, 1,493,000 hectolitres, an increase from 870,000 hectolitres in 1899. Silk culture is a growing industry, being most extensively carried on in Piedmont and Lombardy. The annual production of silk cocoons averages 50,500,000 kilogrammes, and of silk, 4,470,000 kilogrammes (one kilogramme = 2.2046 pounds). Sheep-raising is of considerable importance. The output of raw-sugar factories and refineries, in 1901, was estimated at 55,000 metric tons, an increase from 7960 metric tons in 1899. The average yield from forest products (including chestnuts) is estimated at 88,000,000 lire annually. Italy is rich in minerals, the total value of such products in 1900 reaching 85,060,002 lire, as compared with 91,392,468 lire in 1899. The value of the output of the principal minerals in 1900 in lire was: Sulphur, 41,701,381; zinc, 16,408,481; lead, 7,238,965; iron, 4,585,522; salt, graphite, petroleum, etc., 4,174,853; mineral fuel, 3,542,355; and copper, 3,169,842. The number of mine laborers in 1900 was 67,748. The annual output of the marble quarries averages nearly 33,000,000 lire in value.

Commerce and Communications.—Foreign trade is in a flourishing condition, both imports and exports showing a steady annual increase, the former having increased from 1,191,599,000 lire in 1897 to 1,718,489,000 in 1901, and the latter from 1,091,734,000 lire to 1,374,458 in the same period. The imports include food-stuffs, textiles, coal, iron, and machinery. Silk is by far the most important article of export, the value of its exportation showing an increase in value from 349,061,500 lire in 1900, to 433,000,000 lire in 1901. Other items of export in 1901 with their values in lire were: Silk tissues, 75,500,000; cotton tissues, 53,000,000; eggs, 47,900,000; olive oil, 45,700,000 (31,935,708 lire in 1900); sulphur, 41,200,000; wood and straw manufactures, 39,700,000; and wine, 38,700,000. The principal countries furnishing imports to Italy in 1901 in order of importance were: Great Britain, 279,400,000 lire; United States, 234,300,000; Germany, 205,600,000; followed by France, Austria-Hungary, and Russia. The exports go largely to Germany, Switzerland, France, Great Britain, United States, and Austria-Hungary, in the order named. The total length of railways in operation in Italy in 1900 was 0810 miles. A greater part of the lines are owned by the state but operated by private companies.

HISTORY.

The Cabinet Crisis.—The king opened parliament in person on February 20, 1902. Nothing in the speech from the throne was important except a suggestion for a

modification of Italian divorce laws in order to bring them more into conformity with the divorce laws of other European countries. This statement aroused the resentment of some of the more ardent Roman Catholics, and led to the withdrawal from the cabinet of the minister of public works, Count Giusso, whose conscience refused to allow him to remain longer identified officially with a government that looked with favor or leniency upon a doctrine so strongly at variance with the tenets of the Catholic Church. On the day after the opening, the government attempted to bring about the election of Signor Villa as president of the chamber, but found its purpose unexpectedly blocked, several attempts being frustrated by a strong opposition, united for the time being, who insisted on voting blank ballots. The opposition, it was discovered, was composed largely of Socialists who were dissatisfied with the government's position toward labor and hoped to bring it to terms, and of deputies from southern Italy, where the church influence is particularly strong. The latter opposed the government because of its attitude regarding divorce. Premier Zanardelli and his colleagues immediately resigned, but the king feeling that failure to elect the government candidate was not an actual defeat in the parliamentary sense, refused to accept the resignations. By the time the chamber convened again, the government by effecting a settlement of the threatened railway strike had won back the support of the Socialists, and with a majority of 92 votes had no difficulty in electing Signor Biancheri president of the chamber, as well as naming the other officers of that body from the ranks of the ministerial supporters.

The Threatened Railway Strike.—The disagreement between the Italian railroads and their employees, which had been causing trouble for a year or more, reached a critical stage early in March, 1902. The Italian railways, most of which are owned by the state, are operated by private companies under a stipulation that the control shall revert to the state whenever the companies are unable to guarantee a continuation of service. The railway employees have long demanded better pay, arranged on a regular progressive scale, shorter hours of labor, and a reorganization of their service on a regular bureaucratic basis. In January, 1902, they sent an ultimatum to the companies embodying these demands. The companies appealed to the government, which at first adopted a strict policy. Official proclamations were posted notifying the employees that all were public officials and that failure to discharge their duties would render them liable to penalties under the penal code. Another move was the placing under martial law of some 24,000 railway workmen liable to military service. On February 10 the companies agreed to add about 1,700,000 lire to their annual pay roll, but still the employees were not satisfied. Thereupon military reserves to the number of 55,000 were called out, and the minister of war assumed control of the telegraph system. At this juncture occurred the government defeat in the chamber, attributed partly to the Socialists, who were dissatisfied with the government's attitude toward the railway employees. At once the government adopted more conciliatory methods. After considerable negotiating an agreement was reached for a temporary settlement to hold until the lapsing of the greater part of the companies' leases in 1905. By this settlement the government agreed to three annual installments aggregating about 33,000,000 lire toward a total of something over 42,000,000 lire demanded by the employees as a provisional concession, the companies agreeing to pay the balance. By this arrangement the strike was averted but there was an understanding that the demand for the reorganization of the service on a bureaucratic basis would be given attention at some time in the near future.

Church and State.—The long-standing struggle between church and state in Italy continued during 1902 with few signs of abatement. It was the fact that he considered the state subordinate to the church that led Count Giusso, minister of public works, to leave the ministry in March on hearing the utterances in the king's speech concerning divorce. It was the same sort of feeling that led the Clerical deputies at the opening of parliament to join with delight in the movement that resulted in the resignation of Signor Zanardelli, whom they hate as the most powerful enemy of Clericalism. Nevertheless, among the Catholics themselves there have not been lacking signs that point to a desire on their part to heal the breach which for years has prevented the realization of a united Italy. This tendency has manifested itself particularly in the "Christian Democracy" movement, and to check its extension and activity Cardinal Rampolla in April, 1902, sent out a circular letter of instruction dealing with it. The Christian Democracy opposes the *non-expedit* policy of Pius IX. which forbids faithful churchmen taking part in parliamentary elections in Italy, but commands them by non-participation silently to protest against the present position of the Pope in Rome. Under the lead of Abbé Romolo Murri, and supported by two or three influential Clerical newspapers, the Christian Democracy has been slowly winning support. Its purpose is merely to establish in Italy a distinctive Catholic or Clerical party, like the German "Centre," or similar groups in other European countries, which shall overlook for the time being the

question of a recognition of the temporal power of the Papacy, and strengthen the church by its support of the crown. The circular issued by Cardinal Rampolla was a strong plea for a stricter observance of the *non expedit* policy, but except in the south it appears to have had little influence.

Foreign Relations.—An incident of note in the foreign relations of Italy during 1902 was the suspension of diplomatic relations with Switzerland in March on account of the refusal of the Swiss government to institute legal proceedings against the editor of an anarchistic paper for an insult to the memory of the late King Humbert. The Swiss government based its refusal on the ground that the demand for the action was a mere personal request of the Italian ambassador and not a formal complaint made on behalf of his government. Through the mediation of the German emperor diplomatic relations were resumed in July. A further event of importance was the Franco-Italian agreement for the protection of Italian interests in the Mediterranean. It is understood that the new arrangement supersedes the old Anglo-Italian agreement, concluded for the same purpose some twenty years ago. The new understanding is described as being not a protocol convention, or treaty, but a formal declaration countersigned in writing and exchanged between the representatives of the two powers. The French minister for foreign affairs, M. Delcassé, in a public utterance stated that Italy had given France a free hand in the west of Tunis. The Triple Alliance was resumed in June, 1902. (See TRIPLE ALLIANCE.) In July, 1902, the king of Italy visited the czar at St. Petersburg. This excited uncommon interest and pleasure among the Italian people and attracted the attention of the continental politicians. For the Red Sea piracies, see ARABIA. In December, 1902, the Italian minister for foreign affairs, Signor Prinetti, delivered a notable address on commercial treaties, in which he was understood to have said that the government would not be opposed to a scheme for practical free trade. He declared that "negotiations for a renewal of the treaties upon a new basis of reciprocity can hardly fail to bring into such strong relief the value of the reduction in our present general tariff that the treaties grant to Austria-Hungary, that the latter will be unable to refuse to leave the Austro-Hungarian market open to Italian wines." From the attitude of the government toward the commercial treaties it is asserted that Italy is ready to increase her free list with any country which is ready to meet her on the reciprocity basis. In this connection it is significant to note that in the latter part of December the Austrian ambassador at Rome officially denounced the commercial treaty between Austria-Hungary and Italy, which will cease to be in force after the end of 1903.

Members of the Mafia Convicted.—Considerable significance was attached to the conviction in July, 1902, at Bologna, of three members of the Mafia, the notorious and powerful secret society. A jury in the Assize Court after a protracted and exciting trial brought in a verdict declaring that Signor Palizzolo, an ex-Sicilian deputy and supposed head of the Mafia order, Signor Trapani, and Signori Fontana, were guilty of murder. The three prisoners were each sentenced to thirty years' imprisonment. A few years ago it would have been practically impossible to find a jury who would dare to convict members of the order and the outcome of the trial was looked upon as an evidence both of the better state of public opinion regarding the lawless organization and a triumph—although a rather slow one—of Italian justice. Palizzolo was arrested nine years before for the murder of Signor Notarbartolo, director-general of the Bank of Sicily in 1893. The trial, during which the government summoned over 2100 witnesses—such was the difficulty in obtaining evidence against the notorious secret society—is said to have cost over 5,000,000 lire.

Industrial and Social Conditions.—More important than any matter of foreign policy is the present situation in regard to the social and industrial life of Italy. The whole people are oppressed with an excessive burden of taxation of a magnitude such as no other nation in Europe is called upon to bear. In addition to the state monopolies and state and municipal lotteries there is a high tariff on the necessities of life, even on such commodities as petroleum and coffee that are not produced in Italy. Then there are direct taxes on lands and houses, stamp taxes on business transactions, and an income tax. The percentage of increase over normal cost on a few articles of daily consumption as a result of some form of taxation is as follows: Salt, 1300 per cent.; sugar, 350; petroleum, 337; wine, 120; coffee, 75; wheat flour, 62; meat, 10. The conditions in the south of Italy are particularly depressing. There political corruption and moral depravity and degeneration go hand in hand. "There are oases of immorality in the north," said a Socialist deputy recently, "but in the south there are only oases of morality." The southern country is priest-ridden and landlord-ridden. It is plagued with mediæval agricultural methods, poor land and poorer crops, meagre educational facilities, and lack of sanitary improvements and means of transportation. Agriculture, industry, and commerce are at a low ebb. And the government, listening to the political corruptionists who control or own the votes, does nothing for the amelioration of conditions that have probably never

been worse than in 1902. Tens of thousands of the inhabitants are emigrating to North and South America annually. Said the mayor of a southern city to Premier Zanardelli, who made a tour of the south in the fall of the year: "I welcome you in the name of my 8000 fellow-citizens of whom 3000 are in America, and the rest are preparing to follow them." Brigandage is reviving, murder and robbery are on the increase, and bread riots have become of such common occurrence as to call for little comment unless they result in an unusual amount of bloodshed and destruction of property.

The Fall of the Campanile.—No political event in Italy during the year 1902, attracted such world-wide attention as the collapse on July 14 of the Campanile, the great bell-tower of the Cathedral of St. Mark's at Venice, one of the most famous monuments of Europe. Begun in A.D. 920, the tower had long been considered one of the greatest architectural glories of Italy. The tower, which stood in the Piazza di San Marco, between the cathedral and the ducal palace, was 323 feet in height from the base to the apex of the spire. The structure was more famous than beautiful, however, the lower part of it, with the exception of a logetta of Sansovino, being of plain unornamented brick. The arcaded belfry and the pyramid surmounted by the bronze figure of an angel (Peace) dated only from the sixteenth century. The statue was recovered from the ruins with its head broken off, but it will be possible to repair it.

The Case of the American Naval Officers.—In April, 1902, there occurred at Venice an incident, not of any importance in itself, but interesting rather because it gave an occasion for an act of international comity on the part of the king of Italy and for the mutual expression of good-will between the governments of Italy and the United States. Five Americans, including a captain of marines, an assistant-surgeon, a lieutenant, a cadet, and a private of the marine corps, all attached to the United States cruiser *Chicago*, landed on April 23 at Venice, where the cruiser touched, to see the sights of the city. In the Café Piazza the Americans got into a brawl with some Italians. The former were arrested and sentenced to four months' imprisonment. The matter was at once reported by the captain of the *Chicago*, and Secretary Hay instructed Ambassador Meyer to look into the matter. After a conference with the Italian minister for foreign affairs, and the satisfaction of the claims of the café proprietor, announcement was made on May 1 that the king had been pleased to pardon the prisoners, and a few days later Secretary Hay, on behalf of President Roosevelt, addressed a note of thanks to the king for his gracious act.

Other Matters.—On January 19, 1902, the Italian senate approved the government bill, already passed by the chamber, for the gradual reduction of local duties on bread and flour together with provisions for making up the consequent loss of revenue. On December 6 the chamber passed an important bill for the municipalization of the public service by which great reforms are expected.

Repeated eruptions of the volcano of Stromboli occurred throughout September, October, and November, 1902, resulting in some loss of property and life.

See ARCHÆOLOGY.

IVORY COAST, a French colony in Africa on the northern shore of the Gulf of Guinea, between the Gold Coast and Liberia, forms one of the administrative divisions of French West Africa (*q.v.*). Including the protected native kingdom of Kong it has an area of about 125,000 square miles and a population estimated at 2,500,000. Although under the general jurisdiction of the governor-general of French West Africa, the colony retains complete administrative autonomy with a governor whose headquarters are at Bingerville. Grand Bassam, the former capital, is the principal port. The colonial budget for 1901 balanced at 1,908,000 francs. The imports in 1900 were valued at 9,080,873 francs and the exports at 8,074,589 francs, the chief articles in the latter category being rubber, 4,725,000 francs; palm oil, 1,475,000 francs; and mahogany, 1,200,000 francs. Coffee culture has been introduced, and the valuable forests of the interior are being cut, although lack of transportation facilities renders shipments difficult.

JACKSON, JOHN BRINCKERHOFF, an American diplomat, was on October 13, 1902, promoted from his post of secretary to the United States embassy at Berlin, to be minister plenipotentiary to Greece, Roumania, and Servia. He was born in Newark, N. J., August 19, 1862, graduated at the United States Naval Academy in 1883, and two years later became an ensign, after a cruise in European waters and some service as an aide to the commander of the European squadron. Resigning from the navy in 1886, he studied law and was admitted to the bar in 1889; and in December of the following year was appointed second secretary of the United States legation at Berlin, a post which he held until November 15, 1894, when he was made secretary of the embassy.

JADASSOHN, SALOMON, a German musician, died February 1, 1902. He was born in Breslau, August 13, 1831, and after studying the piano, violin, and the

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theory of music under many noted musicians, settled in Leipzig in 1852 as a teacher of music. In 1866 he was made conductor of the Psalterion, was kapellmeister of the Euterpe from 1867 to 1869, and in 1871 became professor of the pianoforte, composition, counterpoint, and harmony, at the Leipzig Conservatory. His many musical works display originality in conception and faultless construction, and include a great variety of compositions; and his success in using the canon form gained for him the sobriquet of the "musical Krupp." Besides symphonies, chamber music, and other orchestral compositions, he published many pianoforte pieces, songs, and choral works. Among his more important textbooks are: *Harmonielehre* (1883); *Kontrapunkt* (1884); *Kanon und Fugue* (1884); *Lehrbuch der Instrumentation* (1888); *Elementar-Harmonielehre* (1895); *Der Tonbewusstsein* (1899).

JAMAICA, a West Indian island, constitutes with a number of smaller islands a British colony. The island of Jamaica has an estimated area of 4200 square miles and an estimated population in 1902 of 770,242, almost wholly negro and mulatto. The capital is Kingston (population, 46,542). The colony is administered by a governor (Sir Augustus W. L. Hemming since 1898), assisted by a privy council and by a legislative council of 29 members, of whom 5 are ex-officio, 10 appointed and 14 elected. Revenue and expenditure in the fiscal year 1901 amounted to £760,187 and £763,869, respectively: in 1902, £774,837 and £751,699. In addition there was an expenditure from loans of £1,666,980 and £44,361, respectively. The public debt in 1902 was £3,432,058.

Fruits, especially bananas, pineapples, and oranges, are the staple product. Total imports and exports in 1900 were valued at £1,722,069 and £1,797,077, respectively; in 1901, £1,755,921 and £1,939,142. Percentage values of exports are: Fruit, 51.6; coffee, 7.8; sugar, 7; rum, 6.4; dyewoods, 6.2; pimento, 4. Of the imports 46.8 per cent. come from the United States and 43.3 per cent. from Great Britain; of the exports the United States receives 65.6 per cent. and Great Britain 21.1 per cent. The exportation of bananas in the year ending March, 1902, according to returns of exporting companies, which count two small bunches as one bunch, was over 10,000,000 bunches, the highest record for the colony. It was expected that for the succeeding year the total would be over 12,000,000 bunches.

For some time Jamaica has suffered from economic depression, and the governor's address to the legislative council (February 4, 1902) had little promise of the return of industrial prosperity. It seemed that the limit of taxation had been reached, while widespread poverty prevailed and the business outlook was unsatisfactory. Later in the year, however, a steady development of the fruit trade was noted, and a consequent expansion of the revenue. The outlook in September was stated to be more hopeful than in many years. But a thorough reform is still needed in the primitive and wasteful system of agriculture obtaining with many of the negro inhabitants; their method is extensive rather than intensive, and results not only in getting small crops from large areas, but in the useless destruction of valuable forests.

A serious riot occurred at Montego Bay in April, and the participants were overawed only by a force of some 600 men. The outbreak was said to be the result, indirectly at least, of the unpopular government policy. The particularly obnoxious features of this policy appeared to be the withdrawal of constitutional privileges by Mr. Chamberlain, the colonial secretary; the readjustment of the incidence of taxation, the prosecution of people for non-payment of taxes, and the failure of the Direct Steamship Line to call on the northern side of the island. The government was compelled to withdraw its bill to readjust the incidence of taxation. Later in the month there were further attempts at lawlessness. The governor appointed Chief Justice Sir Fielding Clarke, an elected member of the legislature, and the officer commanding the troops in the island, as commissioners to investigate the facts. As a result over fifty persons were sentenced in August to terms of imprisonment varying from two to fifteen years.

JAMES, Edmund Janes, whose inauguration in October, 1902, as president of the Northwestern University, was celebrated by three days of festivity, delivered on that occasion a notable address on "Some Features of American Higher Education." Among the tendencies in the American system of higher education, he cited the beneficial effect of the non-professional, non-expert, American college board of trustees in preventing isolation by bringing the higher schools in direct touch with the common life of the people and by developing public interest and securing endowments. President James was born May 21, 1855, in Jacksonville, Ill., studied at the Northwestern, at Harvard, and the University of Halle in Germany. After teaching in high schools in 1883 he became professor of public finance and administration at the Wharton School of Finance and Economy in the University of Pennsylvania. In 1884 he became professor of political and social science in the same institution and retained both positions until 1895. At the same time he was also editor of the economic and political publications of the university. In 1895 he became professor

of public administration and director of the extension division of the University of Chicago. He is vice-president of the American Economic Association, and president of the American Academy of Political and Social Science and editor of its *Annals*. He has contributed more than one hundred monographs and addresses to the transactions of societies and similar publications, and is the author of *The Legal Tender Decisions* (1887); *The Canal and the Railway* (1890); *The Education of Business Men in Europe* (1899); *Growth of Great Cities in Area and Population* (1900).

JAPAN, an island empire off the eastern coast of Asia, includes the four large islands of Honshiu, Kiushiu, Shikoku, and Hokkaido (Yezo), together with Formosa (*q.v.*) and many other islands, including the Kuriles and the Pescadores. The capital is Tokio.

Area and Population.—The estimated area of Japan (exclusive of Formosa, 13,458 square miles, and the Pescadores, 85 square miles) is 147,655 square miles. At the beginning of 1899 the population, which increases about 500,000 annually, was 43,763,153, of this number 33,327,935 were inhabitants of Honshiu, the area of which is 87,485 square miles. Kiushiu, with an area of 16,840 square miles, had 6,811,246 inhabitants, and Shikoku, with 7031 square miles, 3,013,817 inhabitants. There is no state religion. The predominating religions are Shintoism and Buddhism. Elementary instruction, which is compulsory, receives government support. Two universities at Tokio and Kioto are also maintained by the state. In the year 1899-1900 there were 26,997 elementary schools with 4,302,623 pupils.

Government.—Before February 11, 1889, Japan was an absolute monarchy. On that date a constitution was promulgated. The executive authority rests with the emperor (mikado), who exercises his functions through a cabinet of ministers appointed by and responsible to him. He also exercises legislative power with the consent of the imperial parliament. This legislative body consists of a house of peers and a house of representatives. Members of the former (about 300 in number) comprise princes and the higher nobles, who have life terms, and certain of the lesser nobles elected from their class and appointees of the emperor, who have seven-year terms. Members of the lower house (369 in number) are elected by manhood suffrage, with property qualification. The emperor in 1902 was Mutso Hito, who was born in 1852, succeeded his father in 1867, and overthrew the Shogunate in 1868. The ministry formed on June 3, 1901, by Field-Marshal Viscount Taro Katsura as premier, continued in office during 1902, with the exception of the minister of war. The portfolios were filled as follows: Foreign affairs, Baron Jutaro Komura; agriculture and commerce, Baron Tosuke Hirata; the interior, Baron Tadakatsu Utsumi; finance, Baron Arasuke Sone; war, Gen. Baron Kodama; marine, Admiral Baron Gombei Yamamoto; education, Baron Dairoku Kikuchi; justice, Baron Keigo Kiyoura; communications, Viscount Akimasa Yoshikawa. On March 21, 1902, General Kodama resigned his portfolio to devote himself to his duties as governor of Formosa; he was succeeded as minister of war by Maj.-Gen. Masatake Terauchi.

Army and Navy.—The emperor is commander-in-chief of the army and navy. All able-bodied subjects between the ages of 17 and 40 are liable to three years' military service or four years' naval. The peace strength of the regular army in 1902 was 143,649 officers and men, and the war strength over 600,000. The army has reached a state of remarkable efficiency. For the fiscal year 1902 the military budget amounted to 49,556,334 yen—38,001,477 ordinary and 11,554,857 extraordinary. See MANŒUVRES, MILITARY AND NAVAL.

The Japanese navy, like the army, is well managed and efficient, and, even more than the army, is one of the most important potential forces in the politics of the Far East. The personnel in 1901 comprised 30,061 officers and men. The ships available for war use in 1902 are reported as follows: First, second, and third-class battleships, 4, 2, and 3 respectively; 6 armored cruisers; 14 small protected cruisers; 3 torpedo gunboats; 15 destroyers; 25 large and 33 small torpedo boats. For the fiscal year 1902 the naval budget amounted to 37,115,266 yen—20,161,010 ordinary and 16,954,256 extraordinary; for 1903, 28,425,640 yen—21,349,054 ordinary and 7,076,586 extraordinary. In May, 1902, it was announced that a government programme of naval construction for the six years 1904-09 included 4 battleships of 15,000 tons each, 2 armored cruisers of 9900 tons each, 4 second-class cruisers of 5000 tons each, 15 destroyers, and 50 torpedo boats. This plan received some modifications—including the construction of 3 instead of 4 battleships and 3 instead of 2 armored cruisers—and was adopted by the cabinet October 30, 1902. This programme which involved an annual expenditure of 16,500,000 yen for ten years, was strongly opposed by the parliament. See paragraph Politics and Legislation.

Finance.—The monetary standard is gold, and the unit of value the yen, worth 49.8 cents. The largest items of revenue are the tax on liquors, the land tax, and customs; the largest expenditures are for the departments of war and marine, for

the service of the debt, and for communications. Provisional statements show a revenue and expenditure of 254,254,532 yen and 254,165,593 yen respectively for the fiscal year 1900; for 1902, 267,100,000 and 266,800,000 respectively. The budget estimates for the latter year were 277,497,003 yen for revenue and 275,887,424 yen for expenditure. The estimated revenue and expenditure for the fiscal year 1903 were 258,000,000 yen and 262,000,000 yen respectively. On March 31, 1900, the public debt stood at 502,967,249 yen, of which 22,126,483 yen were non-interest bearing and the rest at 5 per cent.

Industries.—Although only about one-sixth of the area of Japan is available for cultivation, agriculture is the most important industry. In recent years, however, there has been notable progress in manufacturing, especially in the textile industries. The leading crop is rice, amounting in 1900 to 41,465,137 koku (a koku = 4.9629 bushels). Other crops in that year were: Barley, 8,656,404 koku; rye, 7,496,919 koku; wheat, 4,232,860 koku. Cocoon production in 1900 amounted to 2,752,714 koku, and raw silk 2,493,544 kwan (a kwan = 8.28 pounds). Tea production in 1899 reached about 16,352,000 pounds. The value of the mineral production in 1900 was placed at 49,733,823 yen, including coal amounting to 24,583,038 yen; copper, 16,282,387 yen; gold, 2,832,108 yen; silver, 2,336,558 yen. The manufacture of silk, cotton, and other textiles increased from a value of 17,825,645 yen to 104,977,691 yen in 1896 and 171,583,603 yen in 1899. Almost every branch of manufacturing shows a marked growth, but cotton spinning is the most important. The unfavorable economic conditions existing in 1900 and to a lesser degree in 1901 gave place to more prosperous times, and the outlook of industrial Japan is distinctly promising. The improvement of financial conditions is indicated by the gradual lowering of rates of interest and the substantial increase of the gold reserve in the Bank of Japan. Nevertheless the amelioration of labor conditions, especially in the manufacturing industries, is needed, while the want of more productive territory for the overflowing population—such as Corea, which is still the goal of and perhaps will be the supreme disappointment to Japanese ambition—is as keen as ever. During the last few years the standard of living and along with it prices have been raised considerably, but in general wages have not risen in proportion. In industry, commerce, and government Japan is becoming a western nation, taking to itself the wider outlook and more varied needs of the Occident together with the worry and stress inevitably attendant.

Commerce.—Imports and exports valued in yen are stated as follows:

	1898	1899	1900	1901
Imports	277,502,000	220,401,925	287,580,283	255,816,645
Exports	165,753,752	214,929,894	204,630,335	252,349,542

The very great excess of imports over exports was a most disquieting factor in Japan's economic development, so that the nearly attained commercial balance of 1901 was a feature of real encouragement to both government and people. The excess of imports in 1896, 1897, and 1898 amounted to about 54,000,000 yen, 56,000,000 yen, and 111,000,000 yen respectively. It is remarkable that the consequent outflowing specie did not seriously derange Japan's currency. The imports in 1901 were exceeded only by those of 1898 and 1900, while the exports in that year were the largest without exception. The foreign trade—imports and exports combined—has increased as follows: 1871 to 1881, 56 per cent.; 1881 to 1891, 129 per cent.; 1891 to 1901, 257 per cent. The leading imports are cotton goods, iron and steel manufactures, wool and woollens, sugar, and petroleum.

The trade of Japan with the countries of greatest commercial importance is stated in yen as follows:

Countries.	Imports to Japan.		Exports from Japan.	
	1900	1901	1900	1901
Great Britain	71,708,424	50,575,787	11,270,770	11,522,728
British India	28,539,395	42,779,904	6,062,049	9,657,594
United States	62,822,700	42,769,429	63,919,270	72,309,357
Germany	29,228,310	28,320,100	3,796,927	5,251,070
China	29,990,100	27,256,688	40,257,034	42,925,578
Hong Kong	10,670,300	11,141,787	34,291,307	41,786,646
France	8,103,751	8,752,827	29,247,837	27,275,671

In 1900 there entered Japanese ports 6630 vessels of 9,825,622 tons and cleared 6656 vessels of 9,835,980 tons; the entrances in 1899 were 3403 vessels of 3,608,494 tons, and the clearances 3549 vessels of 3,777,716 tons. It should be pointed out that beginning with 1900 a vessel is counted at each port made during a voyage, while before

that year it was counted only once. Of the total tonnage entered in 1900, over one-third was British.

Communications.—In 1900 there were 893 miles of railway owned by the state and 2805 miles owned by private companies; 13,879 miles of telegraph line with 59,396 miles of wire; 1794 miles of submarine line with 2033 miles of wire; 1627 miles of telephone line with over 30,000 miles of wire; 4464 post-offices (4832 in 1901). The extension of the telephone in Japan during the last three or four years has been remarkable.

HISTORY.

Foreign Relations.—The most significant event of the year in the diplomatic history of Japan was the conclusion of a treaty of alliance with Great Britain which was signed at London January 30, 1902, and made public February 11 following. The preamble of the treaty recites that the high contracting parties are actuated solely by a desire to maintain the *status quo* and general peace in the extreme East and especially in maintaining the independence and territorial integrity of the Empire of China and of Corea, and in securing equal opportunities in those countries for the commerce and industry of all nations. The high contracting parties therefore mutually recognize the independence of China and Corea and declare themselves to be entirely uninfluenced by any aggressive tendencies in either country. They announce that it will be admissible for either of them to take such measures as may be indispensable in order to safeguard their interests in China and Corea if threatened either by internal disturbance or outward aggression. They further stipulate that if either party in the defense of its interests as above described, should become involved in war with another power, the other high contracting party will maintain a strict neutrality and use its efforts to prevent other powers from joining in hostilities against its ally. But if any other power should join in hostilities against either ally, the other party will come to its assistance, will conduct the war in common and make peace in mutual agreement. They agree that neither party will, without consulting the other, enter into separate arrangements with another power to the prejudice of the interests above described. The agreement is to remain in force for five years. The conclusion of this treaty is universally regarded as an event of far-reaching consequences in its effect upon the future of international politics in the Orient. In Great Britain the announcement occasioned much surprise and some disappointment that the government should have broken away from what was understood to be its traditional policy in the East. The British negotiator, Lord Lansdowne, described it as the "outcome of events in the East and of the part taken by Japan and Great Britain in dealing with them." The affinity of Great Britain for Japan has been noticeable ever since the Chinese-Japanese war when she refused to join Russia, France, and Germany in preventing Japan from reaping the full fruits of her victory. In many quarters, including certain parts of Japan, the opinion has been asserted that the spirit of the treaty is aggressive and calculated to provoke war with Russia. Besides, it is claimed, the alliance will encourage Japan to greater activity in Corea, while the declaration of Great Britain's neutrality will only serve to encourage Russia in her policy of aggression. In this connection it is worthy of mention that a joint Franco-Russian note with reference to the alliance was formally exchanged shortly after the announcement of the treaty. The defenders of the alliance, however, assert that its purpose is defensive and is not directed against any particular power, but is intended to thwart the selfish schemes of certain European powers in China whose interests are against those of Great Britain and Japan. The alliance with Great Britain does not seem to have strained the relations between Japan and Russia since it has been recently announced that negotiations for a commercial treaty between these two powers are nearly concluded. One of the main features of the proposed treaty relates to the question of special privileges for each country's exports to the other.

An incident of note in Chinese-Japanese relations was the withdrawal in November of the Japanese garrison from Shanghai, the government of Japan reserving the right to send troops there again should any other power do so.

Politics and Legislation.—On August 12 the general elections throughout the empire were held, resulting in a sweeping victory for Marquis Ito and the Seiyu-Kai (friends of the constitution). Scarcely one-third of the old members were re-elected. The election, therefore, was equivalent to a vote of censure against the house of representatives whose record was not creditable. The completed returns gave the Seiyu-Kai 192 votes; the Progressists 104; the Independents 59; Imperialists and others, 20. For the first time since the establishment of the constitutional monarchy one party was able to command a majority of the votes in the chamber. Soon after the meeting of the new parliament a conflict arose between the cabinet and the lower chamber over the ministerial scheme for raising money to defray the expense of the elaborate naval programme to which the country is pledged as a result of the alliance

with Great Britain. The provision of the ministerial programme which called out the greatest opposition of the house of representatives was the proposed continuance of the land tax which had expired and which the government had promised not to renew. To this the house was almost unanimously opposed without respect to party, although there was little or no opposition to the naval programme. Marquis Ito, the leader of the Seiyu-Kai, recommended that the increased funds be obtained by a reduction of the budget for the extension of railways, telegraphs, telephones, and other administrative economies. The cabinet finally agreed to abandon the new scheme of railway extension and to reduce the maximum rates of the local land tax in consideration of continuing the increased rate of the national land tax, but even this was not satisfactory, and the Seiyu-Kai in particular seemed determined to overthrow the ministry, which they accused of financial extravagance. The sittings of the house were twice suspended in order to prevent a vote on the question, and finally, in the latter part of December, the chamber was dissolved by order of the emperor in consequence of its refusal to entertain proposals for a compromise.

An incident of note in the administration of internal affairs was the decision of the Japanese government to collect the house tax from foreign residents in the empire. Considerable friction was occasioned in some of the "foreign parts" like Kobe and Yokohama, where foreigners are numerous. Payment of the tax by American residents was being made under protest, when the government officially announced that it had agreed with the foreign governments concerned to refer the matter to arbitration, but meanwhile to enforce the law by making a first collection. The arbitration tribunal consists of two members of the Hague Court with an umpire, and the question to be decided is whether, under existing treaties, the perpetual leases granted by the Japanese government exempt from taxes only the land, or whether both land and buildings are exempted.

JAVA, the most important of the Dutch East Indies (*q.v.*).

JEWS. The total Jewish population of the world is a matter of conjecture from year to year. *Hazell's Annual* for 1903 gives 11,000,000 as the probable number, while the *American Jewish Year Book* for 1902-03 places it at 10,378,530. The *Jewish Year Book* of London distributes them as follows in detail: About 8,397,000 in Europe, with 586,900 in Germany, 1,994,300 in Austria-Hungary, and 5,140,800 in Russia (though the official census figures for 1897 were 5,700,000); Asia, 318,000; Africa, 354,000; the Americas, 1,077,000; and Australia, 10,600. The American reference book states the total number of the Jews in the United States as 1,136,240, with 500,000 in the State of New York, 95,000 in Pennsylvania, 75,000 in Illinois, 60,000 in Massachusetts, and 50,000 each in Missouri and Ohio. This shows an increase of over 90,000 compared with 1,045,555, the number of 1901, and the calculations were based on the rate of mortality among the Jews.

From the Jewish point of view the year was prosperous in general. In Russia the Blondes case of ritual murder was re-tried on February 10-13, and the defendant acquitted. In two universities the percentage of admission for Jewish students was restored to its rate of a year or two before. More liberality was shown in the treatment of sickness-certificates for military non-appearance, as well as in the interpretation of the notorious May laws with reference to the residence of Jews in country-places and in a slight expansion of the "pale of settlement." There were current, even well-founded, rumors of granting the Jews the right of purchasing land within a stipulated amount. The appointment (on May 14) of Gen. Giuseppe Ottolenghi as war minister of Italy and senator of the kingdom, produced a great impression among the European powers and raised high hopes in many quarters. In France, the compromise cabinet of Waldeck-Rousseau was returned on April 26 with greatly increased majorities. Drumont, Cassagnac, Pioux, and Max Régis were badly defeated; most of the Dreyfus champions, notably the socialist Jaurès, were elected afresh, though Vivran was defeated in Paris. In Germany the case of the Jew-baiting *Staatsbürgerzeitung* ended in the utter defeat of its editor and proprietor, Count von Pückler; while the expert testimony of Virchow, Leyden, and Bergman in the Konitz trial was instrumental in depriving the anti-Semites of a chance of making another Polna case out of it. England was the one European power to sustain the note of Secretary of State Hay with reference to the Roumanian Jews. The Royal Commission appointed on March 21 by King Edward VII. to investigate the evils and dangers of unrestricted foreign immigration heard many witnesses, Dr. Herzl among them, and though no severe measures were decided upon, yet the very fact of the agitation (really aimed at the Jewish immigration) and the formation of the "British Brothers' League" for that purpose were ominous signs of a vague anti-Semitic sentiment in England. In Roumania the usual atrocities were probably brought to a climax by the Artisans' Bill of February 4, requiring that foreign artisans prove reciprocal rights, in their country, for Roumanians. This was the severest blow at the Roumanian Jews, whom the law of Roumania treats as "foreigners"; as the 60-70 per cent. of them engaged in trades cannot prove reciprocal

rights in *their* country. But on April 30 the king granted the president and the rabbi-preacher of the Bucharest Choral Temple an audience to plead against the iniquities of the new law.

Revival of Feeling of National Unity.—The year was marked by a strong and general reawakening of the spirit of unity among the Jews. In Germany two new societies were formed: the *Hilfsverein der Deutschen Juden* to assist Jews outside of Germany, and the society of theologians, littérateurs, and savants to "promote Jewish science," but chiefly organized on account of the anti-Semitism in the ranks of church authorities and incumbents of university chairs in Germany. Its object is to fight these tendencies and investigate questions of Jewish history, economics, theology, etc. A similar body came into existence in France under the name of *Committee for Combating Anti-Semitism.* In Austria the two factions of Zionists and Nationalists came to an understanding, and their representatives signed an agreement to work hand in hand to advance the welfare of the nation. The new liberal *Oesterreichische Israelitische Union,* though defeated in the official contest with the followers of the old *régime,* showed a gain of over one thousand members in one year. In Russia periodicals in Yiddish and Hebrew, all advocating nationalism and national regeneration in one way or another, cropped up like mushrooms after a rain, and two firms engaged in the publication (in Hebrew) of general text-books and books of information as well as books relating to the study of the Hebrew language, literature, and history, did a flourishing business. The members of the more intelligent classes, for whom Russian has been their mother-tongue, lately began to exhibit the keenest interest in Yiddish, a "Yiddish Soirée" at St. Petersburg proved a great success. The approaching celebration of Baron Horace Günzburg's seventieth birthday and fortieth anniversary of literary and educational activity (February 10, 1903) was made the occasion of a vigorous agitation and collecting of funds to establish a Jewish Institute in Russia.

Anti-Semitism.—In Germany, though no longer of the brutally militant character as of old, anti-Semitism is still spreading among the intellectuals. *Gesinnungsantisemitismus* supplants *Radauantisemitismus,* less demonstrative, but quite as effective, and an agitation is carried on to lessen the number of Jews in the liberal professions and positions. When Singer, Stadthagen, and Wurm began a bitter attack on the bill of the Agrarians, the cry *Juden 'raus!* rang through the hall of the august Reichstag. In Austria, the priesthood by means of systematic propaganda helped the Christian Socialist party, which received from the anti-Semites every kind of assistance at the elections. Ritual murder cases were reported by the press in sensational articles nearly every week, though just as regularly proven groundless. Some serious anti-Jewish outbreaks occurred in Russia at Czenstochowo; in Galicia, in January, thirteen Jews were killed; small anti-Jewish riots took place at Alt-Jariczow, Galicia, on July 20, and at New York City at the funeral of Rabbi Jacob Joseph, on July 30. In Persia two Jewish peddlers were killed, from motives of robbery, near Feruz-Abad by a notorious highwayman, but no justice could be found even after the efforts of the *Alliance Israélite Universelle.*

Hardships.—Fires of disastrous magnitude occurred in the thickly populated cities of Bobruysk, Russia, and Botoshany, Roumania, leaving many thousands of Jews without shelter and any means of subsistence. Palestine suffered greatly from the cholera, the quarantine throwing the inhabitants of Jerusalem and other large cities into dire wretchedness, as most of them make a living by catering to the wants of pilgrims and tourists, who were shut out during the epidemic. Meat-riots, with women as ringleaders, during the early part of the summer, were the order of the day in New York owing to the exorbitant prices set by the meat trust.

Religious Progress; Zionism.—The corner-stone of a synagogue was laid at Lisbon on May 25, 1902, the first in the native land of the *auto-da-fé,* after four centuries of Jewish exile, and the first synagogue in Hong Kong was dedicated on April 8. The Vienna *Actions-Comité* reported that the audience accorded Dr. Herzl by the Sultan on July 27 did not realize their high expectations as the conditions proposed by the Ottoman ruler for Jewish colonization in Palestine did not seem acceptable for the present. The Pan-Russian Zionist Congress met on September 4-10, at Minsk, Russia, with nearly 500 delegates present. Three points of interest were discussed: (1) Organization; (2) culture and economic conditions; (3) colonization. The debates brought out clearly three factions: Democrats, for Western culture; *Misrahim* (Easterners), for the faith and simple life of olden times; moderates, between the two.

The Jews in the United States.—The year 1902 was probably the most eventful of many in the history of Judaism. In the first place Congressman H. M. Goldfogle introduced (on April 30) a resolution in the House of Representatives, asking for information on what grounds American citizens of Jewish faith were discriminated against, while no such treatment was reserved for citizens of other creeds. However, the official answer was of little consequence and value as information, claiming

as it did that the Jewish American citizens were receiving exactly the same treatment as did Jews of other countries, which was not an answer to the point. The other step taken by the government in behalf of the Roumanian Jews was more momentous. In a diplomatic note, dated August 11, Secretary of State Hay requested the signatories of the Berlin Treaty to call upon the Roumanian government for an explanation of its treatment of the Jews as foreigners which is a distinct violation of article 44 of the Berlin Treaty. See ROUMANIA.

At the Central Conference of American Rabbis held on May 7-8 at New Orleans, the familiar question of celebrating Sabbath on Sunday aroused a great deal of discussion, and a special committee was appointed to frame an exhaustive report to be presented at the next annual meeting. The creation of a new Jewish Theological Seminary of America by means of a merger with the Jewish Theological Seminary (founded in New York in 1886) was hailed with delight by those competent to judge. Through the munificence of several public-spirited Jews the new institution of learning obtained commodious quarters, assured of a large endowment fund, and placed under the care of the well-known Semitic scholar, Solomon Schechter, formerly professor at Cambridge and London universities. The chief events in the way of periodic gatherings were: (1) The annual convention of the Federation of American Zionists (Boston, May 25-26), reporting the total number of societies as 174, inclusive of the 24 new ones (with 837 members) formed during the year; (2) the second biennial meeting of the National Conference of Jewish Charities (Detroit, Mich., May 26-28); (3) the sixth summer assembly of the Jewish Chautauqua (Atlantic City, N. J., July 6-27); (4) the third triennial convention of the Council of Jewish Women (Baltimore, Md., December 2-10); (5) a convention of orthodox rabbis of the United States (New York, July 30-August 6) at which a Union of Orthodox Rabbis was organized, the chief points discussed being: the improvement of the Hebrew schools (*Kheder*), divorce and remarriage, and ways of making the observance of dietary and religious laws more feasible. The appearance of the second and third volumes of the *Jewish Encyclopædia* met with as much popular approval as fell to the lot of the first volume, and gave particular pleasure to those aggrieved at the temporary discontinuance of its publication during the previous years. Several wealthy members of the Jewish community came to the rescue of a publication of vital importance to the whole Jewish people.

Deaths.—The Jewish obituary list for the year included among others the famous sculptor Mark Matveyevich Antokolski; the painter I. L. Ashknazi; the great Lublin (Russian Poland), Rabbi Schneir Zalman Schneirsohn (April 11, aged 72); Immanuel Lazarus Fuchs, professor of mathematics at Berlin (April 26); Rabbi Jacob Joseph of New York; Lord Perbright (Baron de Worms), member of the House of Lords since 1880; and Jean de Bloch, the famous authority on finance and war, who was of Jewish blood, though not of Jewish faith.

JOHNS HOPKINS UNIVERSITY, at Baltimore, Md., opened in 1876. During 1902 instruction was given at the university by a staff of 146 professors, associates, instructors, assistants and lecturers. The students numbered 689, of whom 188 pursued courses under the philosophical faculty, 338 under the medical faculty, and 163 in the undergraduate courses. Upon the retirement of Dr. Gilman from the presidency in 1901, Professor Ira Remsen was chosen to succeed him and entered upon his duties in that year. His inauguration took place on February 22, 1902, during the celebration of the quarter-centennial of the university's foundation. The celebration was attended by delegates from all the important colleges and was made the occasion for conferring a number of honorary degrees. At about the same time the university received the gift of a new site consisting of 176 acres of eligibly situated land within the city limits. Removal to this site will be begun as soon as the necessary money for the erection of buildings has been contributed and the buildings have been made ready. A subscription by Baltimore citizens, alumni and friends of the sum of $1,000,000 was made as an addition to the endowment. Of this sum the income only is to be used for current expenses. The State legislature continued the annual grant to the university amounting to $25,000 a year for the years 1902 and 1903. As residuary legatee, under the will of the late Professor Adams, the university received the sum of $41,000, to be known as the Herbert B. Adams Fund, the income of which is to be applied to the furtherance of the interests of the department of history and politics. Numerous minor gifts were received, including funds for the purchase of books and apparatus, for publication, and for lectures, amounting to more than $5000, besides valuable books, portraits, and other contributions. The university's resources amounted to about $5,000,000 in endowment, more than $1,000,000 in grounds and buildings, $250,000 in apparatus and books, and $250,000 in income. The number of bound volumes in the library was 105,000. Among other events of 1902 were the establishment of the Rowland Memorial Library on Spectroscopy, founded by an admirer of the late Professor Rowland with a donation of $7000, and the investigation by the department of

political economy into American trades unions. During the year the systematic study of Philippine dialects has been successfully taken up, including courses in Tagalog and Visayan, of the former of which the first English grammar will soon be published.

JOHNSON, JOHN BUTLER, dean of the College of Engineering in the University of Wisconsin, died in June, 1902. Professor Johnson, who was well known as the author of many standard works on engineering, was born at Marlboro, O., June 11, 1850, and was educated at the University of Michigan, where he graduated in 1878. After serving as a civil engineer on the Lake and Missouri River surveys, he joined the faculty of Washington University, St. Louis, in 1883, where he lectured and carried on experiments until called to the University of Wisconsin in 1899. He was a prominent member of American and English engineering societies, and was the author of *The Theory and Practice of Surveying* (1886), *Modern Frame Structures* (1893), *Engineering Contracts and Specifications* (1895), and *Materials of Construction* (1897).

JOHNSON, LIONEL PIGOT, an English critic and poet, whose premature death, October 6, 1902, in London, is recognized as a loss to English letters, was born in March, 1867, at Broadstairs, England. Educated at Winchester College and New College, Oxford, he wrote, while still an undergraduate, an essay on the *Fools of Shakespeare*, an early promise of the critical gift which distinguished his later work. During the brilliant success of the *Anti-Jacobin* he was its chief contributor, and afterwards wrote mainly for the *Academy* and the *Daily Chronicle*. In 1894 he published *The Art of Thomas Hardy*, a notable contribution to English criticism, which won him universal recognition as a critic of the first rank. The only complete volumes which he published, besides *The Art of Thomas Hardy*, were *Poems* (1895), and *Ireland, and Other Poems* (1897).

JONES, FRANK, a former congressman from New Hampshire, died October 2, 1902, at Portsmouth, in that State. He was born September 15, 1832, at Barrington, N. H. While a young man he was engaged mainly in the hardware business, but after 1861 interested himself in brewing. He was elected mayor of Portsmouth in 1868 and in 1869, and was elected to the Forty-fourth and Forty-fifth congresses. He was president of the Boston and Maine Railroad for three years, and was a director of the Maine Central, of many street railways, and of nearly every bank in New Hampshire. He was the owner of the Rockingham House at Portsmouth, the Wentworth in Newcastle, and the Boston Tavern in Boston.

JOSE, JULIO, Marquis de Apezteguia, a Cuban statesman, died in New York City, April 14, 1902. He was born on the island of Trinidad in 1843, of mixed Spanish and Basque parentage, and after studying at the Ecole Centrale in Paris, he returned to Cuba and assumed the management of the large plantations formerly owned by his father. A business visit to New York in 1879 was soon followed by a marriage with an American lady, and a few years later while living in Spain he was elected a member and then secretary of the Cortes. After returning to Cuba he was again sent to Spain as deputy and senator. He was an influential leader of the conservative party in Cuba, and was in favor of a limited home rule; but, though he warmly opposed Spanish despotism, he distrusted the ability of the Cuban people to govern themselves. After the Spanish-American War he made his permanent home in New York City.

JOSEPH, JACOB, chief rabbi of the orthodox Jewish congregations in the United States, died July 28, 1902, in New York City. He was born in 1840 in Wilna, Russia, where he took up clerical duties in the synagogue at the age of eighteen years. While still a young man he was offered a large tract of land by the Russian government, which endeavored to induce him to lead in the establishment of a Jewish colony in Siberia. He refused the offer, however, and in 1887 came to New York at the call of the orthodox Hebrew congregations of that city. He was the head of the Beth Hamedrash Hagodal congregation, became chief rabbi, and was the head of the kosher meat clergymen in the United States. His oratorical powers were noted, and during his career he delivered many lectures. Among several books published by him, is *Beth Jacob*, a work on Jewish religion, history, and law. His public funeral services in New York City were the occasion of a race riot, in which a number of persons were injured.

JOUETT, JAMES EDWARD, rear-admiral, U. S. N. (retired), died October 1, 1902, at Sandy Spring, Md. He was born February 27, 1828, in Lexington, Ky., entered the navy as a midshipman in 1841, fought in the Mexican War and graduated at Annapolis in 1847. At the beginning of the Civil War he was assigned to the west Gulf blockading squadron with the rank of lieutenant. In November, 1861, with a small party he captured a Confederate vessel in Galveston harbor after a desperate hand-to-hand encounter in which he received several wounds. He received the

thanks of the navy department and was put in command of the *Montgomery*. In the battle of Mobile Bay he handled his vessel with a skillfulness and dash that won the highest commendation from Admiral Farragut. He was promoted in due course to rear-admiral, and when he was retired in 1890, Congress granted him full pay for life, by a special act, in recognition of his brilliant services.

JUSSERAND, Jean Adrien Antoine Jules, the French ambassador at Washington, who was appointed to succeed Jules Cambon in that position, has had an excellent diplomatic and a distinguished literary career. He was born at Lyons, February 18, 1855, and in 1878 entered the diplomatic service of France as an attaché to the consulate in London, continuing to reside in that city, with slight interruptions, until 1890. During the last three years of that period he was counselor of the London embassy. Appointed minister to Denmark in 1890, he continued in that office until his present promotion. M. Jusserand's literary attainments have given him an international reputation. During his residence in London he followed vigorously the study of English literature, and has since made it his chief intellectual pursuit. He has also written on French literature and literary epochs, and has won wide fame as a keen, comprehensive critic comparatively free from national bias, and a scholar of remarkably extensive knowledge in his chosen department. One of his books, *English Wayfaring Life in the Middle Ages*, was crowned by the French Academy. He has also written the following works: *A French Ambassador at the Court of Charles II.; Piers Plowman; Shakespeare in France under the Ancien Régime; Sports in Ancient France;* and in 1894 published the first volume of what is planned to be a great *History of English Literature*, a work for which special study and residence have helped to prepare him. In 1883 he received the decoration of the Legion of Honor.

KAMERUN. See Cameroon.

KANSAS, a central western State of the United States, has an area of 82,236 square miles. The capital is Topeka. Kansas was organized as a Territory May 30, 1854, and admitted as a State January 29, 1861. Population in 1900 was 1,470,495; in June, 1902, as estimated by the government actuary, 1,483,000. The populations of the four largest cities in 1900 were: Kansas City, 51,418; Topeka, 33,608; Wichita, 24,671; and Leavenworth, 20,735.

Finance.—The balance in the treasury of the State of Kansas on July 1, 1901, was $577,625.99. The total receipts during the fiscal year ending June 30, 1902, were $3,580,380.85, the disbursements $3,530,639.99, and the balance on June 30, 1902, $627,366.85. The main item of revenue in the general fund, applicable to ordinary government expenses, was derived from the State tax of 5½ mills. On a property assessment of $363,156,045 this yielded during the year $1,866,384.51. At the end of the year the total bonded indebtedness of the State was $632,000, all of which was held by the educational fund—$623,000 by the permanent school fund, and $9000 by the university fund. The debt of the State, therefore, is owed to itself, but the treasurer recommended that the bonds be redeemed as soon as feasible. As in many other western States where the bulk of the revenue is raised by a general property tax, the governor stated that, with the increase of personal property, the farmer, the small house owner and the possessor of real estate paid nearly all the taxes, the owner of the personal property escaping. In 1900, for example, he stated that the total assessment on personal property had been but $57,000,000, while one item of personalty alone, namely cash deposits in banks, was $60,000,000. The State tax commission, appointed by the legislature in 1901 to devise a plan to do away with these inequalities, prepared a report to present to the legislature meeting in 1903.

Agriculture and Industries.—The year 1901 was a very unprofitable one for the farming interests in Kansas. The drought and hot winds in July and August severely injured all crops except wheat, which was an exceptionally good crop. In 1902 just the opposite conditions prevailed. The rainfall was much heavier than usual, and all crops except wheat were far above their average yield. The corn crop was valued at $75,753,911—considerably more than all other crops together. The yield per acre was 30.4 bushels, as against 7.8 bushels in 1901 and 20 bushels for a ten-year average. The acreage for 1902 given in the *Crop Reporter* was less than the census figures for 1899—the respective figures being 7,451,693 acres and 8,266,018 acres. The production for 1902 was given as 222,805,621 bushels. Kansas had nearly 50 per cent. greater acreage of winter wheat (4,162,965) than any other State; but several other States had a larger production. According to the *Crop Reporter*, the total acreage of wheat in 1899 was 3,803,818; in 1902, 4,395,319. The yield in 1902 was 45,827,495 bushels; the value, $25,205,122. There was a striking difference between the yields of winter wheat per acre in Kansas and the adjoining State of Missouri. In the former it was 10.4; in the latter, 19.9 bushels. Nevertheless, the acreage reported sown in Kansas in the fall of 1902 was 6,066,408—an increase of more than 45 per cent. over the year 1901. There were 941,168 acres of oats, which

yielded 31,529,128 bushels, valued at $9,458,738. The area of hay land was 1,888,937 acres; the production, 3,211,193 tons, and the value $13,840,242. The values of potatoes and of flaxseed raised were, respectively, $4,817,283 and $1,229,453. Stock-raising has increased greatly in importance during the last five years. The *Crop Reporter's* statistics for January 1, 1903, showed that only Texas and Iowa had a larger number of cattle. Kansas had 9,747,545 cattle, valued at $81,771,305; 880,715 horses, valued at $50,139,464; 1,875,692 swine, valued at $15,980,896; and 271,360 sheep, valued at $813,891. During 1902 coal was mined in greater quantity than ever before. The year's output was 5,379,500 tons, valued at $6,727,065 at the mines. Crawford and Cherokee counties were the principal producers. This same region experienced a remarkable growth in the production of spelter, owing to the bringing in of smelters from Illinois and Indiana for the purpose of utilizing the natural gas recently discovered in southeastern Kansas. The Iola district of Kansas and the plants at Lasalle-Peru, Ill., were the only producers of Western spelter at the end of 1902. The smelters ran to their full capacity throughout the year, and many enlarged their capacity. The development of Iola made it an important metallurgical district in the United States. Plants for the manufacture of sheet zinc, lead, and sulphuric acid were built during 1902.

Legal Decisions.—The State supreme court, on June 7, handed down a decision upholding the validity of the Farrelly anti-trust law. All but one of the associates concurred in Chief Justice Doster's decision. The supreme court, on July 21, under the provisions of the anti-trust law, forbade the American Book Company from doing business in the State. During the ten months ending November 1, there were filed in the district court at Topeka 180 suits for divorce, 114 of which were granted. Most of the suits were brought on the ground of desertion. In the Dempster Mill Manufacturing Company vs. Bundy, it was held that a contract between husband and wife, engaged in farming, to the effect that the husband shall work for the wife and act as her agent in what he does, and in payment for such personal services she agrees to work for the husband, with the further agreement that the product of such joint labor shall be the property of the wife, is contrary to public policy, and void, and such contract will not sustain a claim of ownership in the wife of a crop sown, grown, and harvested by the husband, as against his creditors.

Conventions and Platforms.—The Democratic State convention was held at Wichita on May 23. In the platform the national Democratic platform of 1900 was reaffirmed, trusts were denounced, reform of State tax laws, so as to reach trusts and monopolies, was favored, public ownership of public utilities was recommended, free railroad passes were condemned as a mischievous means of discrimination, the attitude of Democrats in Congress on Philippine matters was praised. In State matters, direct legislation and minority representation in the State legislature were advocated, and the submission of the prohibitory amendment to the voters of the State, was urged.

The Republican State convention was held at Wichita on May 28. The planks in the platform included an indorsement of the President, and supported protection, but favored reciprocity, particularly Cuban. Combinations of capital in restraint of trade were opposed. The carrying out of a liberal pension policy was advocated; the abrogation of the Clayton-Bulwer treaty was approved; the Isthmian Canal was favored, the passage of the Chinese exclusion law was upheld, and the making of adequate laws against anarchism was strongly urged.

The Kansas Populists, in convention at Topeka, on June 24, voted against an independent ticket, and ratified the action of the Democratic State convention. The resolutions adopted included declarations in favor of the initiative and referendum and the popular election of senators.

Lynching.—A mob at Pittsburg, on December 25, attacked the jail where was confined Montgomery Godley, a negro accused of having shot Wilton Hinkle, a policeman, who had encountered a gang of lawless negroes. Godley was dragged from the jail, strung up to a telephone pole, and, when it was found that he was not dead, his throat was cut. On the following day it was discovered that he was innocent, the murder having been committed by his brother.

Elections.—At the regular biennial State election, held on November 4, 1902, a full Republican State ticket was elected. The vote for governor was: Bailey (Rep.), 157,506; Craddock (Dem.), 118,348. The new ballot law caused much trouble because of its complications, resulting in the invalidating of almost 10 per cent. of the votes cast. No charges of fraud, however, were brought by either party. Though the Populist convention indorsed the Democratic platform and ticket, many of the former adherents of the Populist party voted the Republican ticket. The fight for the senatorship became very warm immediately after the result of the

election was announced. The legislature for 1903 will consist of 128 Republicans, 32 Democrats, and 5 Populists.

State Officers.—For 1902: Governor, W. E. Stanley; lieutenant-governor, H. E. Richter; secretary of state, George A. Clark; treasurer, Frank E. Grimes; auditor, George E. Cole; attorney-general, A. A. Godard; superintendent of education, Frank Nelson; commissioner of agriculture, F. D. Coburn; superintendent of insurance, W. V. Church—all Republicans. For 1903: Governor, W. J. Bailey, elected for two years, term ending January, 1905; lieutenant-governor, D. J. Hanna; secretary of state, J. R. Burrow; treasurer, T. T. Kelly; auditor, Seth G. Wells; attorney-general, C. C. Coleman; superintendent of education, I. L. Dayhoff; commissioner of agriculture, F. D. Coburn; superintendent of insurance, C. H. Luling—all Republicans.

Supreme Court.—For 1902 and 1903; Chief justice, Frank Doster in 1902, William A. Johnston in 1903; associate justices, William A. Johnston (1902), Henry F. Mason (1903), William R. Smith, Edwin W. Cunnigham, Adrian L. Greene, John C. Pollock, Abram H. Ellis (died in September, 1902, and was succeeded by Rousseau A. Burch)—all Republicans.

For congressional representatives see UNITED STATES (paragraph Congressional Representatives).

KANSAS, UNIVERSITY OF, Lawrence, Kan., founded 1864. In 1902 the faculty numbered 81, and the student enrollment was 1233, including 69 graduate students and 619 in the school of arts. The income was $195,000, and the library contained about 38,000 volumes. A new museum building was completed in 1902 at a cost of $75,000, in which will be housed the magnificent collection of mounted mammals, birds and fishes belonging to the university and valued at $250,000. The fund for maintenance for each of the years 1903 and 1904 will be nearly $200,000, and a new law building is projected at a cost of $50,000. In 1903 the first summer session under the auspices of the university will be held. The present chancellor is Frank Strong, Ph.D.

KAPOSI, MORIZ, an Austrian dermatologist, died March 6, 1902, in Vienna. He was born at Kaposvar, Hungary, October 23, 1837, studied medicine at the University of Vienna, and in 1879, four years after receiving his degree, became director of the dermatological clinic of the city. In 1881 he advanced to the position of chief professor. He was the author of valuable works on skin diseases, among which may be mentioned: *Die Hautkrankheiten* (1872), *Pathologie und Therapie der Hautkrankheiten* (1879), *Pathologie und Therapie der Syphilis* (1891), *Handatlas der Hautkrankheiten* (3 vols., 1898-1900).

KEDZIE, ROBERT CLARK, professor of chemistry at Michigan Agricultural College, died November 7, 1902, at Lansing, Mich. He was born January 23, 1823, at Delhi, N. Y.; graduated at Oberlin College in 1847, and from the medical department of the University of Michigan, in its first class, that of 1850. During the Civil War he was a surgeon in the Twelfth Michigan Infantry, from which he resigned to become professor of chemistry at the University of Michigan. He was a member of the State legislature in 1867, and from 1873 until 1881, when he was also president of the State board of health. He was vice-president of the American Medical Association, and of the American Association for the Advancement of Science, a fellow of the American Academy of Medicine, and president of the Association of Agricultural Colleges. After forty years of active service, he was retired in June, 1902, and made professor emeritus.

KENSIT, JOHN, an English anti-ritualist agitator, died in the Royal Infirmary at Liverpool, on October 8, 1902, as the result of a severe wound in the left eye, inflicted by a chisel hurled at him during his return from an anti-ritualist meeting at Birkenhead. Born, it is stated, in London, about 1852, he was the inconspicuous proprietor of a bookshop in Paternoster Row, until in 1896 he appeared as the leader of a campaign against the Roman Catholic Church and the ritualistic element in the Establishment. A band of preachers, organized by him under the name of Wicliffites, went about blacklisting churches, disturbing the worship of proscribed congregations, and defying the civil law. Skirmishes at times amounting to riots ensued between these preachers and guards stationed to prevent their entrance. In one instance a cross was removed from a church. Any favor toward the movement which might possibly have existed among communicants of the Church of England was alienated by the fact that the Wicliffites readily occupied Nonconformist pulpits. The troubles culminating in Kensit's death had been in progress for some weeks at Birkenhead and Liverpool. Earlier in 1902 Kensit was a violent protestant on the occasions of the confirmation and consecration of Charles Gore (*q.v.*), Bishop of Worcester.

KENTUCKY, a south central State of the United States, has an area of 40,332 square miles. Kentucky was organized as a Territory in 1790, and admitted as a

State June 1, 1792. The capital is Frankfort. The population in 1900 was 2,147,174; in June, 1902, as estimated by the government actuary, it was 2,208,000. The populations of the largest cities in 1900 were: Louisville, 204,731; Covington, 42,938; Newport, 28,301; and Lexington, 26,369.

Agriculture and Industries.—For 1902, all farm crops in Kentucky, with the exception of winter wheat, were above the average. Corn and tobacco were by far the most important crops. Statistics of corn showed 3,336,791 acres; yield, 90,093,357 bushels; value, $37,839,210. Comparison of the census figures for 1899 and the statistics of the Department of Agriculture for 1902 seems to show a decrease in the production of tobacco during that period from 314,288,050 pounds to 257,755,200 pounds—over 18 per cent. less. The same sets of statistics indicate an increase of 40 per cent. in the value of the crop—the respective estimates being $18,541,982 and $25,775,520. Kentucky ranks first among the States in the production of tobacco—producing nearly one-third of the crop in the United States. The *Crop Reporter* estimates the acreage for 1902 at 322,194 acres. The hay crop for 1902 was considerably above the average—500,204 acres of hay land produced 720,294 tons, valued at $8,139,322. Weather conditions were not favorable for the growth of wheat in 1902. Moreover, the crop seems not so well adapted to the soil as others. Comparing the census figures for 1899 with the Agricultural Department's statistics, there appears a large decrease in the acreage, production, and valuation of the wheat crop.

Mining in the State was carried on actively in 1902. The coal mines were troubled very little with strikes, and the State mine inspector placed the output for 1902 at 6,421,266 short tons, as against 5,469,986 tons for 1901. The production of whiskey showed considerable decrease in 1902, due largely to the failure of the corn crop in 1901. The total amount of spirit of all kinds produced in 1901 was 30,552,252 gallons; in 1902 it fell off to 25,832,785 gallons. Of fruit brandy only 131,825 gallons were made in 1902. The total number of distilleries in operation was 339. Internal revenue receipts in Kentucky for 1902 were $21,996,013.

Political.—The developments of the Goebel case during 1902 included the trial of James Howard in January, when he was again convicted of murder. His sentence was changed from that of death to life imprisonment. New trials were applied for in his case and in that of Caleb Powers, who had been sentenced in 1901 to life imprisonment after a second trial. The petitions in both cases were under consideration at the close of 1902 in the Court of Appeals. Gerry Howard, a brother of James Howard, tried as an accessory before the fact in connection with the Goebel murder, was acquitted in April. Garrett Ripley was tried and acquitted for the second time. Henry Youtsey, another alleged accessory, was sentenced to life imprisonment.

Elections.—The legislature of Kentucky on January 14, 1902, elected James B. McCreary (Dem.) United States senator, to succeed William J. Deboe (Rep.) for the full term beginning March 4, 1903, and ending March 4, 1909. The State legislature for 1903 will consist as before of 26 Democrats and 12 Republicans in the senate, and 74 Democrats and 26 Republicans in the house.

Other Events.—During January there was an oil boom in several counties, including Clay, Todd, Christian, Bath, Muhlenburg, and Floyd, and a number of new wells were opened at Hopkinsville. On January 9 twelve companies were organized to prospect in Christian County. Lumbermen from various parts of the Union met at Lexington in April and formed an association to control the prices and grades of poplar timber. William Ritter, of Columbus, O., was elected president. It was reported, early in October, that the Standard Oil Company had bought 2,000,000 acres of oil lands in the State and would begin the construction of a pipe line to cost $1,000,000. On December 3 this company purchased the entire holdings of the Licking Valley Oil and Gas Company for $500,000, and about the same time the holdings of the Gaffey and Galley Company for $850,000. It was announced in December that the Harry Weissinger Tobacco Company's plant at Louisville, one of the largest in the United States, had been sold to northern capitalists for $1,000,000, and on December 30 the Continental Tobacco Company formally took over the property. The Cumberland and Powell valleys were flooded late in March; railroad bridges and trestles were washed away and plantations laid waste. The feud between the Hatfield and McCoy families was renewed on March 29 after a five years' truce. Harry Watts and John Rutherford, the latter a detective who had a warrant for the arrest of Ephraim Hatfield and entered his house at Blackberry Creek, Pike County, were resisted by Hatfield and his son Thompson. A fight resulted, in which both Hatfields were killed. Their funeral on the 30th was attended by 200 persons, all the men carrying guns. The southern suburbs of Covington were deluged by a water spout on May 20; the water in the streets was 20 feet deep and six persons were drowned.

State Officers for 1902 and 1903.—Governor, J. W. C. Beckham, elected for four years, term ending December, 1903; acting lieutenant-governor (vacancy), Newton

W. Utley; secretary of state, C. B. Hill; treasurer, S. W. Hager; auditor, G. G. Coulter; attorney-general, C. J. Pratt; superintendent of education, H. V. McChesney; commissioner of agriculture, I. B. Nall; commissioner of insurance, J. B. Chenault—all Democrats except Pratt.

Court of Appeals: For 1902: Chief justice, B. L. D. Guffy; associate justices, A. R. Burnam, J. P. Hobson, T. H. Paynter, George Du Relle, J. D. White, and Edward C. O'Rear. For 1903: Chief justice, A. R. Burnam; associate justices, J. P. Hobson, T. H. Paynter, E. C. O'Rear, H. S. Barker, W. E. Settle, and T. J. Nunn—all Democrats except Burnam and Paynter.

For Congressional representatives see UNITED STATES (paragraph Congressional Representatives).

KHIVA, a vassal State of Russia. See CENTRAL ASIA, RUSSIAN.

KIMBERLEY, first Earl of, JOHN WODEHOUSE, a British Liberal statesman, died in London, April 9, 1902. He was born January 7, 1826, and was educated at Eton and at Christ Church College, Oxford. His long career of official service began in 1852, when he was appointed under secretary of state for foreign affairs. He held this office until 1856, and afterwards in 1859-61. In 1856-58 he was envoy extraordinary to St. Petersburg, and in 1863 was despatched on a special mission to Copenhagen in regard to the settlement of the Schleswig-Holstein question. His most important subsequent positions were: Lord-lieutenant of Ireland in 1864-66; lord privy seal, 1868-70; colonial secretary, 1870-72, in the first administration of Mr. Gladstone, also the same office in 1880-82 during the second administration of that statesman; secretary for India 1882-86; secretary for foreign affairs, 1894-95. While his public service was in no sense brilliant, Earl Kimberley was looked upon as a safe counsellor and careful administrator. A vast fund of political experience had been acquired by him and in his later years he was of excellent service to his party, particularly as leader of the Liberals in the House of Lords after 1897. In 1846 he succeeded his grandfather as third Baron Wodehouse, and in 1866 he was created first Earl of Kimberley. During the long and harassing conflict with the Boers, Earl Kimberley, although unalterably opposed in theory to the policy of the colonial secretary, Mr. Chamberlain, was entirely guiltless of public utterances of his antagonism, for fear of discrediting the government.

KIMBERLEY, LEWIS ASHFIELD, rear-admiral, U. S. N. (retired), died January 27, 1902, at West Newton, Mass. He was born April 2, 1830, in Troy, N. Y. In 1846 he was appointed to the navy from Illinois, and took his first voyage in the *Jamestown,* which was engaged in suppressing the slave trade along the African coasts. In 1850 he was transferred to the Pacific squadron, two years later was promoted midshipman and in 1855 attained the rank of lieutenant. After serving on many stations he was promoted lieutenant-commander in 1862 and assigned to Farragut's flagship, the *Hartford.* He served with Farragut during the war, was then on the European squadron, and in 1866 became a commander and took charge of the receiving ship at New York City, where he remained until 1870. He commanded later the *Benicia,* the *Canonicus,* the *Monongahela,* and the *Omaha.* In 1874 he was commissioned captain. From 1880 to 1883 he was in charge of the New York navy yard, in 1884 became a commodore and was a member of the examining and retiring board at Washington, and in 1866 was commandant of the Boston navy yard. In 1887 he became rear-admiral, was assigned to the Pacific squadron, and in the negotiations over the Samoan Island difficulty displayed a tactfulness that was highly appreciated. His gallant conduct in the hurricane at Apia Bay, March 15, 1889, is well remembered. The only ship that succeeded in keeping up her fires and in escaping from the harbor was the English vessel *Calliope,* and as she steamed by his flagship he ordered the band to play "God Save the Queen" and called the men from the pumps to cheer.

KING'S DAUGHTERS AND SONS, INTERNATIONAL ORDER OF THE, an interdenominational organization, founded in 1886 and incorporated in 1889, the objects of which are "the development of spiritual life and the stimulation of Christian activities." The work of the order, which includes Christian service of whatever character, is conducted through circles of varying size, these forming units in chapters and city unions. There are also county, State, and national branches. The order is now organized in 34 States of the United States and in all the provinces of Canada, its total membership approximating 700,000 and its adherents being found in nearly all parts of the world. President, Mrs. Margaret Bottome; general secretary, Mrs. Mary Lowe Dickinson; headquarters, 156 Fifth Avenue, New York City.

KOWEYT, a port and district near the head of the Persian Gulf. See ARABIA.

KRAFFT-EBING, RICHARD, Baron von, a German neurologist, died at Gratz, in December, 1902. He was born in Mannheim, August 14, 1840, and after study at the

universities of Heidelberg, Zürich, Vienna, and Prague, became an assistant physician at the Illenau Asylum for the Insane, where he began the special study of nervous diseases that led to his subsequent reputation for authority in that field. From 1869 to 1872 he practiced in Baden-Baden as a specialist in neurology, served for a year as professor of psychiatry at the University of Strassburg, and in 1873 went to Gratz, where in 1880 he assumed the duties of professor of psychiatry and nervous diseases in the university of that place. He was appointed to the chair of psychiatry and neurology in 1889 at the University of Vienna, where he remained until his retirement to Gratz early in 1902. He was the author of many books on nervous and mental diseases which have been widely noticed by the medical profession and which have contributed greatly to the present status of medical jurisprudence; and his *Psychopathia Sexualis* (1886, 11th ed., 1901) is now received as a standard work. The most important of his other writings are *Grundzüge der Kriminalpsychologie für Juristen* (1872); *Lehrbuch der gerichtlichen Psychopathologie* (1875); *Lehrbuch der Psychiatrie* (1879, 6th ed., 1897); *Neue Torschungen auf dem Gebiet der Psychopathia sexualis* (1891); *Eine experimentelle Studie auf dem Gebiete des Hypnotismus* (3d ed., 1893); *Die progressive allgemeine Paralyse*, in the *Specieller Pathologie und Therapie* (1894); *Psychosis menstrualis* (1902).

KRUPP, Friedrich Alfred, proprietor of the Krupp ordnance works in Germany, died November 22, 1902, at Essen, where he was born in 1854. He was the only son of Alfred Krupp, whose father founded on a small scale the industrial enterprise which is now the largest in the world in the hands of a single firm. The rapid growth of Prussia as a military power, followed by the unification of Germany and the establishment of the German army, created the prosperity of the Krupps. On his father's death, Friedrich A. Krupp became proprietor of the business and managed its affairs with the most unerring accuracy. He also interested himself personally in the welfare of his employees, for whom stores are maintained in which provisions are sold at cost prices, and houses that may be had at a fair rental, as well as libraries and halls for recreation and instruction. He was a member of the Prussian upper house and council of state and of the Reichstag from 1893 to 1898. Just before his death his private character was violently assailed by the socialist paper, the *Vorwärts*. These attacks are thought to have hastened his end. The emperor, who was a warm friend of Krupp's, defended him in a public speech at the funeral, and arraigned the *Vorwärts'* attack as being basely directed against one of the foremost philanthropists of the time.

KÜRSCHNER, Joseph, a German author and editor, died July 29, 1902. He was born in Gotha, September 20, 1853, and after four years' training as a mechanical engineer studied for a while at the University of Leipzig. His early literary work, which comprised necrologies of actors, two series of a *Chronologie des Theatres* and the editing of several magazines in Berlin, was followed by the supervision of the monthly journal *Vom Fels zum Meer* (1881-89), of *Neue Zeit*, the official organ of the German Dramatic Authors' Club (1880-82), the *Deutsche Schriftstellerzeitung* (1885-86), and the well-known *Kollektion Spemann* and *Deutsche Nationalliteratur*, the latter a compilation of 220 volumes. From 1889 to 1892 he directed the various periodicals of a Stuttgart publishing house, and in 1891 established the magazine *Aus fremden Zungen*. He was further connected editorially with the seventh edition of Pierer's *Konversationslexikon* and the *Allgemeine deutschen Litteraturkalender;* compiled numerous year books and almanacs, and was the author of *Konrad Ekhof* (1872); *Heil Kaiser Dir!* (1897); *Frau Musika* (2d ed., 1898); *König Albert und Sachsenland* (1898); *China* (1901); *Kaiser Wilhelm II. als Soldat und Seemann* (1902).

KUSSMAUL, Adolf, a German physician, died in Heidelberg, May 28, 1902. He was born in Graben, near Karlsruhe, February 22, 1822, studied at the University of Heidelberg, and after some service as an army physician continued his studies at Wurtzburg and was nominated professor extraordinary at Heidelberg in 1857. In 1859 he became professor of internal diseases and director of clinics at Erlangen, in 1863 was called to Freiberg to act as clinical director, and in 1876 he received the same post at Strassburg. Besides greatly increasing the general knowledge of epilepsy through his book *Ueber den Ursprung und das Wesen der fallsuchtartigen Zuckungen bei der Verblutung sowie der Fallsucht überhaupt* (with Jenner, 1857), he introduced various mechanical appliances for the treatment of internal diseases, such as the stomach pump and the operation of thoracocentesis; and his name is attached to many other medical discoveries. His writings include many papers to medical journals, and *Die Farbenerscheinungen im Grunde des menschlichen Auges* (1845); *Von dem Mangel, der Verkümmerung und Verdoppelung der Gebärmutter* (1859); *Untersuchungen über den konstitutionellen Merkurialismus, und sein Verhältnis zur konstitutionellen Syphilis* (1861); *Ueber die Behandlung der Magenerweiterung durch eine neue Methode* (1869); *Zwanzig Briefe über Menschen-*

pocken—und Kuhpockenempfang (1870); *Ueber die fortschreitende Bielbärparalyse* (1873). His *Jugenderinnerungen eines alten Arztes* appeared in 1898.

LABOR. See CHILD LABOR; FEDERATION OF LABOR, AMERICAN; LABOR LEGISLATION; STRIKES; TRADE UNIONS.

LABOR, AMERICAN FEDERATION OF. See FEDERATION OF LABOR, AMERICAN.

LABOR LEGISLATION. *Recommendations of the President.*—In his annual message to the Fifty-seventh Congress President Roosevelt recommended the enactment of legislation in connection with the interstate commerce law which would render effective the efforts of different States to do away with the competition of convict contract labor in the open market; that so far as practicable provision should be made to render the enforcement of the eight-hour law easy and certain; that women and children in the employ of the United States government should be protected from excessive hours of labor and from unsanitary conditions; that a factory law should be enacted for the District of Columbia; that American labor be protected as far as possible from the competition of laborers brought over by contract; and that all persons should be excluded from immigration to this country who are below a certain standard of economic fitness and who are unable to furnish proof of capacity to earn a living and money enough to insure a decent start under American conditions.

Federal Legislation.—Congress took up the recommendations of the President and in April passed a law re-enacting and extending to the insular possessions the Chinese exclusion act. The act prohibits the immigration of Chinese laborers not citizens of the United States from the insular territories to the United States or from one part of the insular territories to another unless the two places belong to the same group. It is made the duty of every Chinese laborer rightfully in and entitled to remain in any part of the insular territory of the United States, Hawaii (*q.v.*) excepted, at the time of the passage of the act to obtain within one year thereafter a certificate of residence in the insular territory in which he resides upon penalty of deportation. The act does not prevent foreign exhibitors who may have concessions from expositions authorized by Congress from bringing into the United States under contract such mechanics, artisans, agents, or other employees as they may deem necessary for the purpose of preparing or conducting their exhibits.

By an act of July 1 Congress declared that the owners or managers of every coal mine in the territories shall provide an adequate amount of ventilation of not less than 83 1-3 cubic feet of pure air per second or 5000 cubic feet per minute for every 50 men at work in such mine, the air to be forced through by appliances or machinery so as to dilute and render harmless noxious gases. They are further required to keep all entries to coal mines well dampened to allay coal dust, and if water is not obtainable at reasonable cost accumulations of dust shall be removed from the mine. It also prescribes rules and limitation for the firing of shots in the mines of the Indian Territory.

By an act of the same date slavery or involuntary servitude except as a punishment for crime is prohibited in the Philippine Islands. It is also made unlawful for any corporation receiving a grant or franchise from the government of the islands to employ any person alleged to be held in involuntary servitude. Violation of this act is punishable by forfeiture of the concession and a fine not less than $10,000 in amount.

An act of June 17 authorizing the secretary of the Interior to construct irrigation works in certain contingencies provided that in all such work eight hours shall constitute a day's work and that no Mongolian labor shall be employed thereon.

A measure of much importance to the labor interests was the bill to limit the working day of laborers and mechanics indirectly employed on government contracts which passed the lower house of Congress on May 19, as it had passed twice before. It provided that, except in the matter of transportation or in time of war, every contract made by, or on behalf of, the United States, the District of Columbia, or any territory, should stipulate that laborers or mechanics, whether in the employ of a contractor or of a sub-contractor should be neither required nor permitted to work more than eight hours a day. The government, that is, would assume jurisdiction not only over its own employees but over the employees of all private concerns with whom it did business. As these concerns would not find it feasible to operate one branch of their establishments on a ten-hour basis and another on an eight-hour basis, and as the allotting of all government contracts would be conditional upon the eight-hour day, the bill would greatly aid labor organizations in their efforts "to secure a universal eight-hour day for all wage earners in America." That such was indeed the bill's main intent and purpose was frankly admitted by its advocates. On the other hand, the manufacturers who opposed the bill stated that (1) it connoted a ten-hour wage for eight hours of work; (2) that it

would cause a large increase in the cost of government contracts; (3) that as it prohibited overtime work even for the most liberal payments, it would injure both employer and employee; and (4) that it would be unconstitutional since it assumed jurisdiction over the right of private contract.

The Senate committee on labor and education, to which the bill was referred, failed to report it at the first session of the Fifty-seventh Congress on the ground of insufficient time to take the testimony of those who wished to be heard or to investigate the merits of the bill. At the second session the bill was reported, but with numerous and radical amendments. The amended bill removed the objections urged by government laborers by striking out the limitation which prevented them from working more than eight hours in any one day and by inserting a clause providing that not more than eight hours' work should be done in any one day upon a government contract, leaving the laborer or mechanic free to utilize his time in other work. The bill as amended and reported to the Senate was never acted upon.

"Conspiracy" or Anti-Injunction Bill.—A bill intended to prevent the issuance of injunctions against strikers in case of trade disputes passed the House on May 2, 1902, and was referred to the Senate judiciary committee. This bill had been prepared by the attorneys of the American Federation of Labor and introduced in the Fifty-sixth Congress, where it passed the House with amendments which destroyed its value to the labor organizations. In the Fifty-seventh Congress the bill passed the House as originally drawn, but was so amended by the Senate that the labor unions opposed its further consideration. The original bill provided that in trade disputes in any of the territories, in the District of Columbia, or wherever interstate commerce was involved, "no agreement, combination or contract by or between two or more persons to do or to procure to be done, or not to do or procure not to be done, any act in contemplation or furtherance of any trade dispute between employers and employees . . . should be deemed criminal, nor should those engaged therein be indictable or otherwise punishable for the crime of conspiracy, if such act committed by one person would not be punishable as a crime, nor should such an agreement, combination, or contract be considered as in restraint of trade or commerce, nor should any restraining order be issued with relation thereto." In this form the bill evidently sanctioned and legalized the extremest forms of boycott, and declared in effect that unlike the trusts, the labor trust, when engaged in destructive activity should be immune from prosecution. But this meaning of the bill was rudely shaken when the Senate limited the immune agreements, combinations, and contracts to those "not involving injury to property or breach of the peace." For, in the first place, practically all of the boycotting and picketing combinations would fall outside of this limitation, and besides, as the courts were forbidden to issue injunctions in the specified cases, so inferentially they were granted power to issue injunctions in all the others. In other words, as stated by Mr. Gompers, president of the American Federation of Labor, the amendment transformed an anti-injunction bill to a pro-injunction bill, and defeated its whole purpose. The purpose, Mr. Gompers said, had been "to leave questions of wrongdoing to be dealt with by the criminal law when a man could be confronted by a jury of his peers, and not to permit this tremendous power to rest in the hands of chancery judges." But it seemed clear that the unamended bill was of much wider scope and went to the verge of constitutional authority, if indeed it did not exceed it, in creating an exempt class by special legislation.

Prison Labor Bill.—A prison labor bill which had been drafted by the Industrial Commission and passed by the House in the Fifty-sixth Congress was again introduced in the Fifty-seventh Congress. In substance this bill gave authority to those States which already had legislation to protect their free labor from the competition of prison labor, to enact laws prohibiting the importation into the State of convict-made goods. Under existing conditions, and until such power was conferred, States could only regulate their own prison labor and could not therefore protect the labor market. As stated by Mr. Gompers the labor unions had no desire that convicts should be maintained in idleness; but inasmuch as convict labor received only a nominal return prison contractors could undersell other manufacturers by 35 to 40 per cent. and so reduce the price of standard articles to the great disadvantage of honest workmen. On the other hand, and judging from the experience of the States having convict labor legislation, there seemed small reason to doubt that if the bill should pass, its effect would be to maintain convicts in idleness.

On June 27 the House committee on labor reported a bill providing for the appointment by the President of the United States of boards of arbitration when requested to do so by parties to a labor dispute when interstate or foreign commerce is affected. Congress adjourned without taking action on the report.

Among the States labor legislation for the year was small in amount and unimportant in character. The governor of Iowa in his message of January 16 to the legislature recommended legislation for the settlement of disputes between capital

and labor, the extension of the authority of the Bureau of Labor to enable it to protect employees from inadequate heat and dangerous machinery and the prohibition of the employment of child labor in factories. The governor of Maryland recommended the consolidation of the various labor bureaus of the State. The governor of New York suggested the incorporation of labor organizations as a means of enabling them to enforce agreements with employers and recommended the creation of a court of arbitration to consist of one representative selected by the labor interests, one by the employer, and a third selected by these two, with power to settle the questions at issue. For legislation affecting child labor, see article CHILD LABOR.

Judicial Decisions.—Among notable decisions in 1902 affecting the labor question were: A decision of the Supreme Court of Ohio declaring the eight-hour law to be unconstitutional; a decision of the New York Court of Appeals that members of one labor organization may refuse to work with members of a rival organization and may threaten to strike without incurring legal liability to members of the rival organization for causing their discharge; a decision of the Supreme Court of Washington that an act forbidding the employment of females in certain establishments more than ten hours in a day is not a deprivation of liberty without due process of law, but is within the police power; a decision of the Rhode Island Supreme Court sustaining the constitutionality of the ten-hour labor law and holding that eleven hours could not be contracted for; an opinion of the Oregon Supreme Court that a statute prohibiting the opening of barber shops on Sunday is not a deprivation of liberty or property without due process of law; an opinion of the New Jersey Supreme Court that an ordinance forbidding the employment of women in public drinking saloons is not a denial of the equal protection of the laws; a decision of the Missouri Supreme Court that the benefits conferred by a statute which prohibits the payment of wages for labor in any check that is not negotiable at its face value cannot be contracted away or waived by the laborer; a decision of the Supreme Court of Nebraska that an act restricting the employment of women in certain industries to not more than sixty hours per week was constitutional; and an opinion of the Supreme Court of Washington sustaining a statute similar to that of Nebraska mentioned above.

LABRADOR, a dependency of the British colony of Newfoundland, comprising a large area in the most eastern part of the North American continent. According to the latest report available the population was only 3634. On July 11, 1902, an American scientific expedition under Colonel Glazier left St. John's, Newfoundland, to explore the interior of Labrador. It was reported that the purpose of the expedition was to investigate the prospects of a railway that would open up a new grain route through Labrador and connect with Atlantic steamers. Mr. James J. Hill, manager of the Northern Pacific Railway, was connected with the plan.

LACROSSE. Though as yet played in comparatively few colleges and clubs in the United States lacrosse continued to gain in popularity during 1902 and the season was marked by several interesting and well attended contests. The greatest honors were gained by the Crescent Athletic Club, whose team defeated every American college team it met, besides the representatives of Toronto University, the intercollegiate champions of North America, and the Crescents of Perth, Canada, who are the champions of eastern Canada. Their worst defeat was from the Shamrock lacross team of Montreal, champions of the world, by a score of 15 goals to 5. The championship of the Intercollegiate Lacrosse Association of which Johns Hopkins, Lehigh, and Swarthmore are members, was won by Johns Hopkins. Cornell won the championship of the Inter-University Lacross League by defeating the other members, Harvard, University of Pennsylvania, and Columbia. Harvard was second, with 2 victories, Pennsylvania third, with 1, and Columbia last, with none.

LADRONES. These islands are treated under CAROLINE ISLANDS, and GUAM.

LA FOLLETTE, ROBERT MARION, who was elected governor of the State of Wisconsin for a second term in November, 1902, was born at Primrose, Wis., June 14, 1855. He graduated at the University of Wisconsin in 1879, studied law and was admitted to the bar in 1880, and in the fall of the same year was chosen district-attorney of Dane County, of which Madison, the State capital, is the county seat. He held this office until 1884, and in November, 1886, was elected to Congress, where he served two terms (1887-91). The abilities he displayed in his short congressional career marked him as a man of unusual promise. As a member of the ways and means committee he was of invaluable service to its chairman, William McKinley, in framing the McKinley tariff bill, and was one of the ablest defenders of that measure on the floor of the house. The Democratic landslide of 1890 ended his congressional career and he returned to his law practice at Madison, rising rapidly to the front rank of the Wisconsin bar. When he next entered politics it was as the leading spirit in a revolt against the Republican leadership of ex-Senator

Philetus Sawyer, and his friends, who had for many years controlled the party in the State. The fight was long and bitter, but La Follette finally won. Twice the candidate of the Reform (or "Half-Breed") faction, in 1896 and 1898, he was each time defeated, but in 1900 he secured control of the convention, was nominated and triumphantly elected. His first term was characterized by a prolonged struggle with the "Stalwart," or machine faction, who succeeded in blocking in the legislature the two measures for which the governor stood, a reform in the system of railway taxation and a primary election law, although the State platform pledged the party to secure their enactment. The convention which renominated Governor La Follette in 1902 in the face of strong opposition, reiterated these pledges, which was looked upon as a presage of victory for his principles, a view which the fact that his vote at the November elections fell considerably short of that polled by the rest of the ticket, did not materially change.

LAGOS, a British crown colony on the Gulf of Guinea, lying between Dahomey (French) and Southern Nigeria (British), has an area of 3460 square miles. Beyond the colony is the protectorate of Lagos, with an area of 25,450 square miles. The aggregate population of the colony and the protectorate is variously estimated at from 1,500,000 to 3,000,000; probably the smaller number is the more nearly correct. The capital is the city of Lagos, which with suburbs had in 1901 41,847 inhabitants, of whom 233 were European. The colony is administered by a governor (Sir William MacGregor in 1902, since 1899). Stationed at several large towns in the interior are British resident officials and at Abeokuta a superintendent of native affairs. In 1900 revenue and expenditure amounted to £211,467 and £187,125 respectively, and in 1901 £275,021 and £235,495 respectively. Various tropical products are cultivated. In 1900 imports and exports were valued at £830,470 and £885,112 respectively; in 1901, £737,285 and £909,232 respectively. Imports from Great Britain in the former year were £674,885 and exports to Great Britain £309,265; similar figures for 1901 were £572,350 and £285,711 respectively. The leading import is cotton goods. The chief exports in 1900 were: Palm kernels, £403,614; palm oil, £190,165; rubber, £48,239. On March 4, 1901, a railway was opened to traffic from Lagos to Ibadan (122 miles), with a branch (3 miles) to Abeokuta. Other railway construction is projected.

LANDESMANN, Heinrichs, an Austrian poet and author, better known by his pseudonym, "Hieronymus Lorm," died December 3, 1902, at Brünn, Moravia. He was born August 1, 1821, in Nikolsburg, Moravia. At the age of fifteen he became deaf and soon afterwards lost his sight, and yet in spite of these obstacles produced a large number of works which he dictated with the help of signs. He spent his early years in Vienna, where he received his education, lived later in Berlin, Baden, and Dresden, and took up his residence in Brünn in 1892. Many of his poems are included in German anthologies. While in Berlin he was critic for Kühne's periodical *Europa*. His novels include *Ein Zögling des Jahres 1848* (1855); *Der Ehrliche Name* (1880); *Ein Kind des Meeres* (1882). He also wrote dramas, of which *Das Forsthaus* and *Hieronymus Napoleon* are the best known. His poems place him among the foremost of the German pessimistic school. He published *Gedichte* (1870); *Neue Gedichte* (1877); *Nachsommer, neue Gedichte* (1897).

LANDS, PUBLIC. On July 1, 1902, the acreage of the public domain including Alaska and excluding insular possessions was 1,809,539,840 acres, of which 893,955,476 acres were unappropriated and unreserved, 151,161,638 acres were reserved for various purposes, and 764,422,726 acres were appropriated by preliminary entries, filings, or selections, and by school grants. The business of the general land office for the year 1901 far exceeded the record for many years, but the report for the year 1902 shows a further increase in the business transacted. Cash receipts for the fiscal year 1902 were $6,261,927.18, as against $4,972,160.79 in 1901, $4,379,758.10 in 1900, and $3,070,137.34 in 1899. The disposals of public lands amounted to 19,488,535.30 acres in 1902, as against 15,562,796.30 acres in 1901, an increase of 3,925,739 acres. The number of homestead entries made during the fiscal year 1902 was 98,829, comprising 14,033,245.78 acres, a greater number of entries and a larger amount of land than in any previous year, and an increase over 1901 of 30,181 entries and 4,555,970.73 acres. Cash sales amounted to 1,757,592.63 acres, Indian lands, 116,150.12 acres; all others, including State selections, railroad selections, swamp lands patented, wagon-road selections, etc., 3,581,546.77 acres. Of patents issued during 1902, 41,191, embracing 6,590,360 acres, were of the class denominated agricultural, a decrease of 1046 patents and of 167,360 acres. There were issued 1553 mineral and mill site patents, embracing 57,649.41 acres, an increase of 165 patents and 6,796.94 acres. The increase was greatest in Alaska, California, Colorado, Idaho, Montana, South Dakota, and Utah—the last State alone showing an increase of 4,618.69 acres. A falling off in mineral land claims appeared in Arizona, Arkansas, Nevada, New Mexico, Oregon, Washington, and Wyoming. Coal lands

patented amounted to 12,799.10 acres, an increase of 738.23 acres, entirely due to the developments in Colorado and North Dakota, since the other States and Territories did not equal the number for 1901. Lands to the amount of 4,851,353.41 acres were patented on account of railroad grants and 156,778.25 acres on account of wagon-road grants, an increase over 1901 of 2,371,779.93 acres. During 1902 lands embraced in the Wichita, Kiowa, Comanche, and Apache Indian reservations in Oklahoma were thrown open to settlement and entry under the acts of March 2, 1895, and June 6, 1900. The areas covered by surveys accepted during 1902 aggregated 9,267,978 acres, of which Idaho contributed 1,336,495 acres; Montana, 1,899,353 acres; and South Dakota, 1,401,141 acres.

For the public lands of the Philippines and Porto Rico, see PHILIPPINES and PORTO RICO.

LAOS, an inland district of Indo-China, lying southwest of Tonquin, formerly a part of Siam, but since 1893 a protected state attached to the French colony of Indo-China. It has an area estimated at 98,000 square miles and a population of about 605,000. The capital, Luang-Prabang, on the Mekong River, has a population of 40,000. The government is in the hands of a French resident and the cost of administration is borne jointly by the other Indo-Chinese states. The soil is fertile, producing rice, cotton, tobacco, and indigo, and there are valuable teak forests and mineral deposits, but the country has been very little developed on account of the difficulty of access and total lack of transportation facilities. In September, 1902, it was reported that an open revolt existed in the whole of Upper Laos, even up to the banks of the Mekong, and that a number of the French posts had been attacked.

LATANÉ, JAMES ALLEN, an American clergyman, died in Baltimore, Md., February 22, 1902. He was born in Essex County, Va., January 15, 1831, and after receiving an academic and legal education at the University of Virginia he studied at the Virginia Theological Seminary in Alexandria. As a Protestant Episcopal minister he held pastorates in Staunton, Va. (1857-71), and in Wheeling, W. Va. (1871-74), but in 1874 he joined the Reformed Episcopal Church, and five years later became a bishop. At the time of his death he was pastor of a church in Baltimore and was in charge of his denomination's missionary work in the South.

LATEY, JOHN, an English journalist, died on September 26, 1902. He was born in London, October 30, 1842, was educated at Barnstaple, Devon, in 1861 joined the staff of the *Penny Illustrated Paper*, and remained until his death connected with that journal, during later years in the capacity of literary and art editor. To it he contributed, with Harry Furness, the series "Bird's-eye Views," and independently satirical articles over the pseudonym "The Showman." For the affiliated *Illustrated London News* he wrote the department of Parliamentary affairs, and in the Commons gallery was familiarly known by his pen name, "The Silent Member." At one time he was co-editor with Mayne Reid of the *Boys' Illustrated News*, and later became editor of the *Sketch*. In addition to the Christmas annuals of the *Penny Illustrated*, he wrote *The Rose of Hastings*, a comedietta; a *Life of General Gordon;* a translation of Févals's *Fils du Diable* as *The Three Red Knights*, and other works. He was a fellow of the Journalists' Institute, and a founder of the London Press Club.

LATTER DAY SAINTS. See MORMONS.

LAURIER, Rt. Hon. Sir WILFRID, Premier of Canada, came into unusual prominence during 1902 by reason of his appearance at London as the dominion representative at the coronation of Edward VII., and also because of his leading part at the conference of colonial premiers held in that city during the summer. He opposed Mr. Chamberlain's proposal for an organization of imperial and colonial forces for the defense of the empire, his objection being based on the fear that Canada might, under such a scheme, be drawn into the vortex of European militarism. During the conference he favored close communication between different parts of the empire, advocated a preferential tariff for Canada in the British market, and other measures looking towards imperial consolidation. His appearance and conferences with British and colonial statesmen during the summer added to the numerous notable occasions on which he has, during the last six years, figured as a public man of more than colonial importance. He heartily supported the British cause during the South African war, proposed the sending of the military contingents from Canada, thus giving, as a French-Canadian premier, especial significance to the loyalty of the dominion. In 1897 he was also the Canadian representative at Queen Victoria's diamond jubilee, and on that occasion made the offer of the Canadian preferential tariff in favor of British goods, which has now been in force five years. Sir Wilfrid was born at St. Linn, in the province of Quebec, November 20, 1841, was educated at L'Assomption College, and entered the provincial legislature in 1871. In 1874 he was elected to the dominion Parliament, where by his eloquence and power in debate he rapidly attained a leading

position. In 1887, on the retirement of Mr. Blake he was chosen leader of the Liberal party, and after nine years was successful in defeating the government and became premier in July, 1896, being returned again in the general election of 1900. He is a graceful orator and skillful parliamentarian, and in manner and appearance is unusually attractive.

LAWN TENNIS. The season of 1902 witnessed a revival in lawn tennis that gave it such general popularity as it had not enjoyed for half a dozen years. This was due quite as much to a noticeable reaction from other sports among both tournament players and those who engage in the game for mere exercise, as to the visit of an English team in competition for the Davis International Challenge Cup, representing the championship of the world. The contest for this trophy took place on the courts of the Crescent Athletic Club, New York City, August 6-8. The English team consisted of H. L. Doherty, the present English singles champion; R. F. Doherty, former champion, and Joshua Pim; the members of the American team were W. A. Larned, present singles champion; M. D. Whitman, former champion; D. F. Davis, and Holcombe Ward, the last two the national doubles champions. The matches resulted as follows: Singles, Whitman defeated Pim, 6—1, 6—1, 1—6, 6—0; R. F. Doherty defeated Larned, 2—6, 3—6, 6—3, 6—4, 6—4; Whitman defeated R. F. Doherty, 6—1, 7—5, 6—4; Larned defeated Pim, 6—3, 6—2, 6—3. Doubles, H. L. and R. F. Doherty defeated Davis and Ward, 3—6, 10—8, 6—3, 6—4. The American team won 3 of the 5 matches, thus keeping the cup in this country for the third time.

At the All-Comers' tournament held at Newport, August 19-27, the English team was again in evidence, but unfortunately all came on the same side of the draw. Pim was defeated by L. E. Ware, 7—5, 7—5, 6—3, and the Doherty brothers met in the semi-finals. Since they make it a practice not to play in tournaments against each other, H. L. defaulted and R. F. met Whitman in the final round, and defeated him, 6—1, 3—6, 6—4, 6—0. With but one match between Doherty and the American championship, which has never yet been won by a foreigner, Larned, in the most brilliant form he has ever shown, defeated the challenger, 4—6, 6—2, 6—4, 8—6. The title in doubles, however, was not retained. The Dohertys, who had won the Eastern championship at Longwood by defeating R. D. and G. L. Wrenn, 4—6, 7—5, 6—2, 6—2, won from the Western champions, Collins and Waidner, 2—6, 6—3, 4—6, 6—3, 6—3, and in the challenge match defeated Davis and Ward for the second time, 11—9, 12—10, 6—4.

The Women's National championships occurred at Philadelphia, June 23-28. Miss Marion Jones, by defeating Miss Carrie Neeley, 8—6, 6—4, won the right to challenge Miss Bessie Moore for the title. Miss Moore, however, on account of illness, defaulted. The doubles were won by Miss Jones and Miss Juliette Atkinson and the mixed doubles by W. C. Grant and Miss Moore. Other championships resulted as follows: Canadian—Singles, B. C. Wright; doubles, B. C. and I. C. Wright. Middle States—Singles, H. Ward; doubles, D. F. Davis and H. Ward. Western States—Singles, Kreigh Collins; doubles, Kreigh Collins and L. H. Waidner. Eastern States—Singles, W. J. Clothier; doubles, H. L. and R. F. Doherty. Southern States—Singles, R. D. Little; doubles, J. P. Paret and W. C. Grant. Pacific Coast—Singles, G. F. Whitney; doubles, G. F. and H. N. Whitney. Northwestern States—Singles, R. D. Little; doubles, R. D. Little and L. H. Waidner. New England—Singles, C. Hobart; doubles, J. Terry and F. E. Howard. International (Canada, at Niagara-on-the-Lake)—Singles, B. C. Wright; doubles, B. C. Wright and Kreigh Collins. Intercollegiate—Singles, W. J. Clothier (Harvard); doubles, W. J. Clothier and E. H. Leonard (Harvard). Indoor Championship—Singles, J. P. Paret; doubles, W. C. Grant and R. Le Roy. The United States Lawn Tennis Association ranks the ten leading players in the country as follows, on the basis of tournament play: 1, W. A. Larned; 2, M. D. Whitman; 3, B. C. Wright; 4, Holcombe Ward; 5, W. J. Clothier; 6, L. E. Ware; 7, R. D. Little; 8, H. H. Hackett; 9, Clarence Hobart; 10, Kreigh Collins.

LEAD. The output of lead in the United States in 1901 was 270,700 short tons, valued at $23,280,200, or nearly the same as in 1900. This output was distributed among the leading States as follows: Colorado, 73,265 tons; Idaho, 79,654 tons; Missouri and Virginia, 67,172 tons; Utah, 49,870 tons; Montana, 5791 tons; and Arizona, 4045 tons. In addition there was an output of 112,422 tons of lead from ores and base bullion imported from Canada, Mexico, and other countries. The mines in southeast Missouri and in the Joplin district were very active throughout the year, as were those in the Cœur d'Alene district of Idaho; the Leadville mines, however, reported a decrease. Preliminary reports for 1902 indicate a slight falling off in production from the total of 1901. The imports of lead in 1902 in crude form were 107,616 short tons, and the exports were 3271 tons. The lead-smelting industry of the United States is controlled by a trust, which for the past two years has held prices at an almost stationary level.

LEDOCHOWSKI, Mieczislaw Halka, Count and Cardinal, a Polish prelate of the Roman Catholic Church who died in Rome on July 22, 1902, was a picturesque factor in later European annals. Born at Klimontow, October 29, 1822, he was educated for the priesthood in the Jesuit Collegium Nobilium at Rome, was ordained in 1845, and appointed by Pius IX. domestic prelate and prothonotary apostolic, he was sent in 1846 to Portugal as auditor of the Lisbon nunciature. Thence he was later despatched to Colombia as papal delegate to five South American republics, but in 1861 was recalled to Rome to become Bishop of Thebes *in partibus* and papal nuncio at Brussels. He was elected archbishop by the cathedral chapters of Gnesen and Posen, and thereby primate of Poland *ex officio*, in 1865, took the oath of allegiance to Prussia the year following, and forthwith restricted the use of the Polish language in connection with the offices of the church and forbade participation by the clergy in the political disturbances of the Polish Nationalist faction. In 1870, after the occupation of Rome by Victor Emmanuel, he proceeded to Versailles, there to petition William I. for the assistance of Prussia in the restoration of the temporal power of the Pope. Such aid having been refused, his entire attitude toward the Prussian government was reversed. He furthered the Nationalist movement in Poland, and became a leader of the Ultramontane party in the *Kulturkampf*. His defiant opposition to the laws of May 11, 12, and 13, 1873, in particular (the so-called May Laws), brought him in 1874 a sentence to two years' imprisonment and deposition from his archbishopric. The Pope thereupon elevated him to the cardinalate. From 1876 he was at Rome, where in 1885 he was appointed secretary of the briefs, and in 1892 prefect of the Congregation of the Propaganda, a dignity second in responsibility and influence to the Papacy itself.

LEEDS, Albert Ripley, professor of chemistry at Stevens Institute of Technology, Hoboken, N. J., died in Philadelphia, Pa., March 13, 1902. He was born in Philadelphia, June 27, 1843, and graduated at Harvard University in 1865. After teaching for a time at the Franklin Institute in Philadelphia and at Haverford College, he went to Stevens Institute in 1871 as head of the chemistry department. He was a member of the New Jersey State Board of Health from 1881 and served several terms as president of the American Chemical Society. He won a national reputation as a chemist, being known especially as an expert in analyzing water and food products, and was the author of many papers on technical and general chemistry. He retired from active duties only two weeks before his death.

LEEWARD ISLANDS, the northernmost group of the archipelago of the Lesser Antilles in the West Indies constituting a colony of Great Britain. They consist of the five presidencies of Antigua (with Barbuda and Redonda), St. Christopher and Nevis (with Anguilla), Dominica, Montserrat, and the Virgin Islands, which are united in a central federal organization, each retaining its local legislature. The total area of the islands is 701 square miles, and the population (1901) 127,434. The seat of the federal government is St. John, Antigua, where the governor (Sir Gerald Strickland) resides, and where the general legislative council, partly representative in its makeup, holds its meetings. The revenue in 1901 amounted to £123,450 and the expenditure to £132,887. The public debt in 1901 was £286,321, a decrease of £7000 in the year. The imports increased from £346,395 in 1900 to £358,230 in 1901, and the exports from £279,020 to £307,344 in the same period. The trade is largely with Great Britain and the United States, and the staple product is sugar, exports of which, in 1900, amounted to £230,029.

Antigua, the most populous of the group, has an area of 108 square miles, and with the islands of Barbuda and Redonda (area 62 square miles) constitutes a presidency of the Leeward Island colony. The total population (1901) is 34,971, and the capital, St. John, with a population (1901) of 9262. In 1901 the revenue amounted to £42,067 and the expenditure to £48,514. The public debt is £136,571. Both imports (£116,745) and exports (£107,244) show a slight increase in 1901 over the previous year. The principal products are sugar, of which 9124 tons were exported in 1901, and pineapples.

Dominica, the largest island of the group, has an area of 291 square miles, and a population (1901) of 29,000, two-thirds of whom speak French. Roseau, the principal town, has a population of 6000. The revenue for 1901-02 amounted to £29,598 and the expenditure for the same period to £29,673. The public debt is £65,900, a reduction from £70,000 in 1900. The imports and exports amounted (1901-02) respectively to £79,386 and £66,892. There is little sugar cultivated, but the island is prosperous, the principal products being coffee, cacao, and fruits.

Montserrat has an area of 32 square miles, and a population (1901) of 12,215. Plymouth, its chief town, has a population of 1461. The revenue fell from £18,394 in 1900 to £9151 in 1901, and the expenditure from £17,266 to £11,068. The trade and commerce of the island is in a prosperous condition, the imports having decreased from £20,587 in 1900 to £11,693 in 1901, and the exports, largely sugar, lime-juice, and coffee, showing a remarkable increase, from £8287 to £22,247.

St. Christopher, popularly known as St. Kitts, with Nevis and Anguilla, constitute a presidency of the Leeward Islands, having a total population of 46,466 in 1901. St. Christopher, containing many successfully cultivated sugar plantations, has an area of 65 square miles, and a population of 29,782 (1901), of whom 9962 live in the chief town, Basseterre. Nevis has an area of 50 square miles, and a population (1901) of 12,774, and Anguilla an area of 35 square miles, and a population of 3890. The trade and agricultural conditions in the islands have undergone considerable improvement within the year. The revenue in 1901 amounted to £43,792 and the expenditure to £42,971. The public debt is £64,932, a considerable decrease from 1900. The imports increased from £136,435 in 1900 to £149,729 in 1901, and the exports from £109,783 to £127,051. The staple products are sugar, rum, coffee, and cacao from St. Kitts and Nevis, and salt and cattle from Anguilla.

Virgin Islands, the most northerly presidency of the Leeward Islands colony belong to the group of which the Danish West Indian Islands form the principal part. The three British islands of Tortola, Virgin Gorda, and Anegada, have a combined area of 58 square miles, and a population (1901) of 4908. The revenue and expenditure were £1796 and £1924 respectively, and the imports and exports £3048 and £3204, the latter figure showing an increase from £2812 in 1900. Cotton and sugar are cultivated.

LELAND STANFORD, JR., UNIVERSITY, Palo Alto, California. Founded in 1887; opened in 1891. The university opened in September, 1902, with the largest attendance in its history, the enrollment for the first semester being 1330, and for the year 1473. There has been little change in the administrative policy or the instruction the past year, and probably will be little for the next year or two, as the greater part of the income is being spent in the erection of new buildings. The endowment is approximately $35,000,000. The number of volumes in the library is now about 70,000, exclusive of pamphlets. The original buildings of the university consisted of a quadrangle of twelve buildings, with an arcade running around the interior, three small engineering buildings, and a museum building. In 1898 work was begun on the outer quadrangle, which will surround the inner quadrangle and be connected with it by arcades. This outer quadrangle was half completed by the close of 1901, and the close of 1902 saw completed all the buildings of the outer quadrangle. A large chemistry building, begun in 1900, has been completed and occupied, two fine engineering buildings have been completed, and work begun on an enlargement of the museum, which will quadruple its present size. The foundation for a large and well arranged gymnasium has been put in, and in December, 1902, the corner-stone was laid. With the close of 1902 has come the announcement that plans have been accepted for a magnificent library building, and that work will be begun on the foundations early in 1903. It is Mrs. Stanford's intention to build and equip a library intended for advanced research. It is hoped to have the building ready for occupancy in four years. Perhaps the crowning feature of the whole architectural plan is the memorial church, completed at the close of 1902, the dedication ceremony occurring on January 25, 1903. This is one of the handsomest structures in America, and, though not so large, will vie with European cathedrals in beauty. The cost of the church has been about $1,000,000. It is richly decorated with carvings and Venetian mosaics, while the stained glass windows are among the handsomest in America. Rev. R. Heber Newton was installed as pastor of the university. There will be no marked expansion of the work of the university, with the exception of the engineering courses, which have received a very material increase in equipment this past year, until the buildings are in large part completed, the reason being that the buildings are all being built out of the excess of income from the endowment. When the buildings are completed and the income is released for the expansion of the educational work of the university, it is probable that the expansion will be along the lines of a graduate institution for advanced research rather than that of a great popular college, something with which the State is already supplied in the State University at Berkeley.

Several faculty changes occurred during the year as a result of the contest over the question of academic freedom of speech. On this subject Mrs. Stanford formally expressed her views in a communication to the trustees. The system of government of the university will be radically changed by the recently announced retirement of the surviving founder from active participation in the control of the institution, and all powers of administration will be vested in the board of trustees.

LEPROSY. The commission appointed to investigate the origin and prevalence of leprosy in the United States reports that 278 cases exist, distributed as follows: California 24, Florida 24, Louisiana 155, Minnesota 20, North Dakota 16, New York 7, Illinois, Mississippi, and Missouri, each 5, Texas 3, Wisconsin 3, Massachusetts 2, and 9 other cases scattered among as many States. Of these 145 are American born, 120 foreign born, and the remainder uncertain. Summarizing, the commission

MEMORIAL CHURCH, Leland Stanford Junior University

says that the number of cases is smaller than is generally believed; that leprosy is conveyed from one person to another in the southern coast States; that the majority of cases are at large; that only 72 cases are isolated and provided for by the communities in which they live; and that many if not all of those at large would be willing to become public charges if proper leprosaria existed. The commission recommends the establishment of a retreat for lepers either in the arid southwest or in a similar region farther north or on an island in the Gulf of Mexico, or on the Pacific coast. A bill for the establishment of a national leper home was introduced in Congress by Senator Platt, of New York. The measure contains stringent regulations for lepers, and provides that the lepers of Hawaii and the Philippines and Cuba shall be admitted to the institution. It sets aside a square mile of public land for a national leper home and provides $50,000 for buildings. The bill also holds State boards of health responsible for the enforcement of regulations for the isolation of cases of leprosy which are not sent to the national home, and prohibits the entrance into the United States of immigrants from countries where leprosy exists unless accompanied by certificates showing them to be free from the malady. The lepers of Molokai, the Hawaiian leper colony, have petitioned the Senate against the bill. They prefer to remain under the control of the Territorial government. The governor of the island of Guam asks $2000 from the Navy Department for the purchase of land and the erection of buildings for a leper colony. He has found several cases of the disease and has isolated them. During the interregnum immediately following the withdrawal of the Spanish government the few lepers slipped out and became scattered among the people of the villages. Leprosy is said to have developed to an alarming extent in Nicaragua. About fifteen years ago there were 200 lepers there, while at present the number in and beyond the second stage of the disease is placed at from 1500 to 2000. In New South Wales there were in 1901 11 cases of leprosy. They are treated at the Little Bay Lazaret with injections of perchloride of mercury, with but little effect on the disease. Beneficial effects continue to be claimed for chaulmoogra oil in the treatment of leprosy. This is an unofficial preparation expressed from the seeds of the *Gynocardia odorata*, an East Indian tree. Both the crude oil and its active principle, gynocardic acid, are used. The Honolulu Board of Health is soon to institute experiments with the X-rays as a treatment of leprosy. It is believed that the rays may prove specific for the early stages of the local skin lesions. According to an official report there were 37 lepers in the German empire at the end of the year 1901. In all cases the disease was contracted abroad. The leprosy conference held at Wardha, India, is convinced of the contagious character of the affection, and expresses regret that the conference of 1890-91, while reaching the same conclusion, saw fit to minimize it by stating that "under ordinary human surroundings the amount of contagion is so small that it may be disregarded." The conference urges strict segregation in leper asylums. Dr. Jonathan Hutchinson, who recently returned to England after studying the causes of leprosy in South Africa, has arrived at the conclusion that the primary cause of the disease is the use, as food, of badly cured salt fish which is sent inland from Cape Town and elsewhere on the west and south coasts and is largely consumed by farmers and in the industrial centres. Although this is the chief cause of diffusion, Dr. Hutchinson found conclusive evidence that leprosy, in very exceptional circumstances, may be communicated from person to person. He does not believe it to be infectious or contagious in the ordinary sense, but it may be communicated by eating food contaminated by lepers' hands.

LE ROUX, Robert-Henri, better known as Hugues, who came to the United States in 1902 to deliver a course of lectures at Harvard University and in various cities, is the author who asserted that *La Belle Nivernaise*, originally given to the public under the name of Alphonse Daudet, was written by himself. He was born at Havre in 1860. As early as 1882 he began to make notable contributions to the leading French journals, and succeeded Jules Clarétie upon his withdrawal from the staff of the *Temps* in 1885. His reputation as a novelist, playwright, explorer, journalist, and lecturer rests on the foundation of twenty-odd volumes, written in a captivating manner that combines earnestness with the generic suavity and grace of the Parisian. *Nos Fils* and *Nos Filles*, which appeared first in *Le Figaro*, in the form of short articles, are representative of his powers. Among other works which may be mentioned are: *L'Attentat Sloughine* (1885); *L'Enfer Parisienne* (1888); *Les Larrons* (1890); *Les Mondaines* (1893); *Le Maître de l'heure* (1897). His American lectures treat of the modern French novel, of Abyssinia, and of French society. His statement as to the authorship of *La Belle Nivernaise*, whether groundless or not, leaves in either case, something to be desired.

LIANG CHEN TUNG, appointed in 1902 to succeed Wu Ting Fang as Chinese minister to the United States, was born in China about forty-one years ago. In 1872 he was sent to the United States to be educated, and completed a course of study

in history, political science, and law at Yale University. Returning to China he entered the government service, and later accompanied Li Hung Chang to London as interpreter. He continued in the official family of the great viceroy, acting as his secretary during the peace negotiations following the Chinese-Japanese war in 1894-95. He was secretary of the special embassy sent to Queen Victoria's Jubilee in 1897, and in 1901 was secretary of the embassy headed by Prince Chun that carried to Germany China's apology for the murder of Baron von Ketteler, the German minister at Pekin during the Boxer uprising. In the summer of 1902 he accompanied, in the capacity of secretary, the Chinese embassy sent to London to be present at the coronation of Edward VII. He was created Honorary Knight Commander of St. Michael and St. George by Queen Victoria in 1897.

LIBERIA, a negro republic of Africa, on the western Guinea coast, has an estimated area of about 35,000 square miles and a population variously estimated at from 1,500,000 to 2,000,000. About 60,000 are Americo-Liberians. The capital, Monrovia, has between 5000 and 6000 inhabitants. The government is modeled after that of the United States. Effective government administration extends only a few miles inland. The president in 1902 was Mr. George W. Gibson, who was elected by special legislation in December, 1900, to succeed Mr. William D. Coleman, resigned. Revenue is derived mainly from customs. For the fiscal year 1900 the reported revenue and expenditure were $218,804 and $207,935 respectively. The foreign debt, with interest arrears, amounted to £96,997 ($472,036) in June, 1901. There is also an internal debt with unpaid interest exceeding the principal. The chief exports are palm oil, palm kernels, coffee, rubber, cacao, sugar, hides, and arrowroot. Trade, which is small and for which few statistics are available, is chiefly with Great Britain. A movement is under way to induce American negro immigration.

LIBRARY ASSOCIATION, AMERICAN, established in Philadelphia, in 1876. The organization seeks to develop the public library in its bearing on American education, to effect reforms and to lessen the expense of library administration. The official organ of the association is the monthly *Library Journal.* It has been instrumental in establishing library associations in twenty-five States. The twenty-fourth general meeting was held at Magnolia, Mass., on June 14-20, 1902, with an attendance of 1018. The associations maintain five sections: cataloguing, college and reference, library work with children, trustees, and State library commissions. These sections hold separate meetings and each prepares programmes arranged by the president and secretary of the section. At the Magnolia meeting a gift of $100,000 from Andrew Carnegie was accepted, to be used by the publishing board in the preparation of indexes, bibliographies, and reference helps. The publishing board is the most important activity of the association, and published in 1902 an annotated bibliography of American history. It has in preparation an extensive portrait index which promises to be of great service to public libraries. A committee was appointed at Magnolia to arrange for an exhibit by the association at the Louisiana Purchase Exposition at St. Louis in 1904, and will report at the next general meeting at Niagara Falls, June 22-27, 1903. Important papers presented at the Magnolia meeting were "Closer Relations Between Librarians and Publishers," W. H. Page; "Organization and Adminstration of University Libraries," A. H. Hopkins; "Pains and Penalties of Library Work," A. E. Bostwick. Of special significance were the reports by W. D. Johnston and F. P. Hill of the Congressional Library, on the distribution of catalogue cards and printing of special bibliographies. The officers elected at the twenty-fourth meeting are: James K. Hosmer, president; J. I. Wyer, secretary; Gardner M. Jones, treasurer.

LIFE-SAVING SERVICE, attached to the Treasury Department. Statistics of the service for the fiscal year ending June 30, 1902, showed the following: Total number of disasters, 746; value of property involved, $14,567,130; value of property saved, $12,292,795; value of property lost, $2,274,335; number of persons involved, 4220; number of persons lost, 25; shipwrecked persons succored at stations, 712; number of days' succor afforded, 1272; number of vessels totally lost, 51; number of life-savers lost, 7; disasters to sailboats, rowboats, etc., 361; total value of sailboats, rowboats, etc., $174,121; value of sailboats, rowboats, etc., saved, $167,576; value of sailboats, rowboats, etc., lost, $6545; number of persons involved, 796; number of persons saved, 790; number of persons lost, 6; net cost of maintaining the service for the fiscal year ending June 30, 1902, $1,654,392.98.

LIGHTHOUSE SERVICE. About $4,000,000 are now expended yearly by the United States in the maintenance of its lighthouse service and in the construction of new lighthouses. The number and kinds of lights and other aids to navigation employed in the different sections of the country according to the report of the United States Lighthouse Board for the year ending June 30, 1902, are shown in the following table.

Aids.	Atlantic Coast.	Pacific Coast.	Lake Coast.	Western Rivers.	Total.
Electric lights	4				4
First-order lights	40	18			58
Second-order lights	16	1	3		20
Third-order lights	36	5	24		65
Three and one-half-order lights	3		8		11
Fourth-order lights	185	21	95		301
Fifth-order lights	108	7	44		159
Sixth-order lights	57		47		104
Lense-lantern lights	160	31	101		292
Range-lense lights	16				16
Reflector lights	56		7		63
Post-lantern lights	432	125	126	1,424	2,107
Light-vessels in position	32	3	10		45
Electric-lighted buoys	11				11
Gas-lighted buoys	35		67		102
Total lighted aids	1,191	211	532	1,424	3,358
Fog-signals operated by steam, hot air, or other engines	78	34	76		188
Fog-signals operated by clockwork	198	15	18		231
Day beacons	450	97	1	311	859
Whistling buoys	57	27			84
Bell buoys	109	15	3		127
Other buoys	3,923	364	633		4,920
Total unlighted aids	4,815	522	731	311	6,409
Total number of aids	6,006	763	1,263	1,735	9,767

LINDSAY, Robert Burns, the first governor of Alabama after the reconstruction period, died February 13, 1902, at Sheffield, Ala. He was born July 4, 1824, in Dumfriesshire, Scotland, and was educated at the University of St. Andrews. In 1844 he came to the United States and took charge of an academy in North Carolina. After a few years he removed to Tuscumbia, Ala., where he studied law. In 1853 he was elected to the State legislature, and in 1857 and 1866 to the State senate. In 1860 he was chosen presidential elector by the Democratic convention. He refused to support Breckenridge, however, and became an elector on the Douglas ticket. In 1869 he resigned from the State senate to be the Democratic conservative candidate for the governorship, in which office he served from 1870 to 1872.

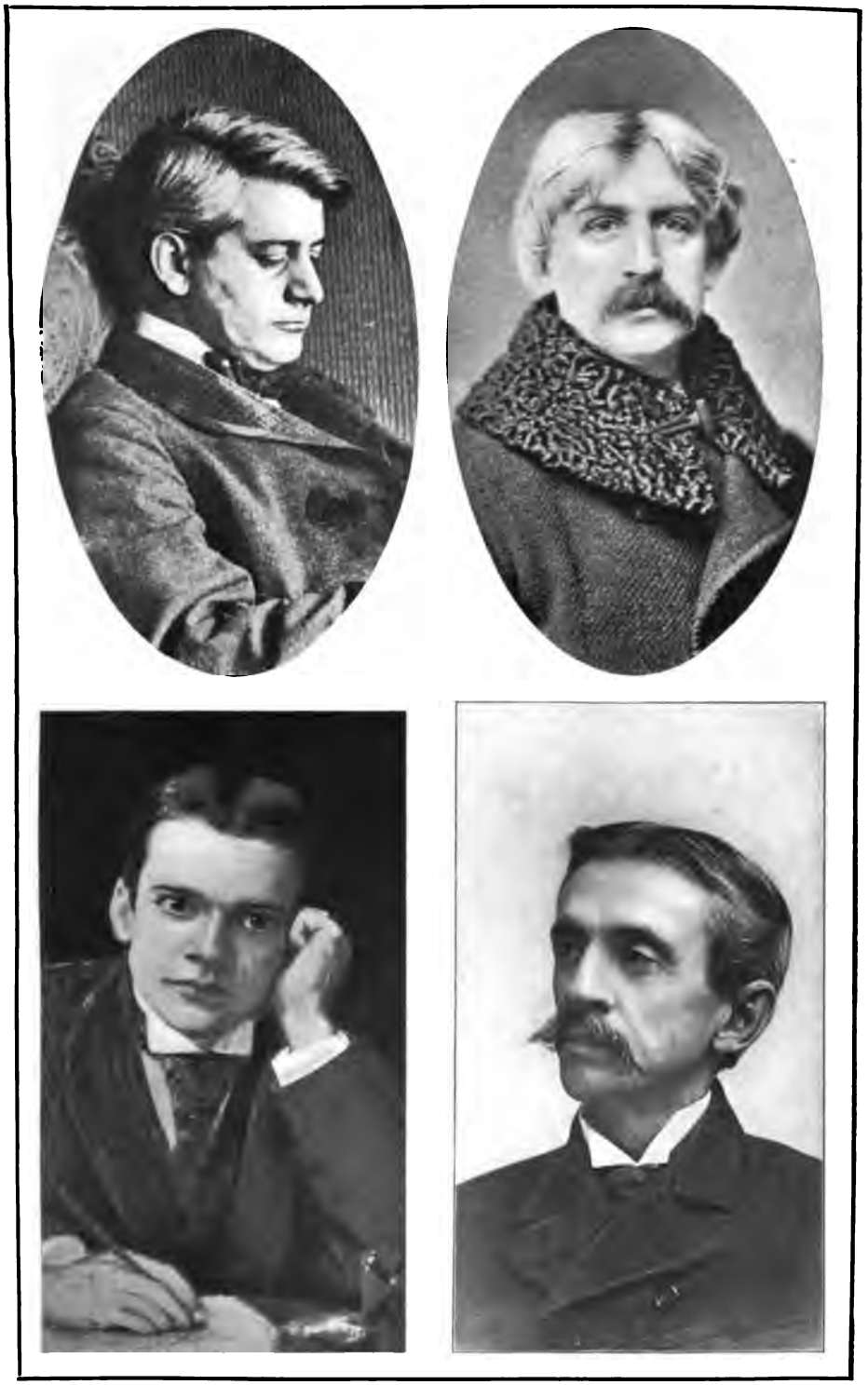
LIPPITT, Francis James, an American lawyer and military writer, died in Washington, D. C., September 27, 1902. He was born in Providence, R. I., July 19, 1812, and was educated at Brown University, from which he graduated M.A. in 1830. In the Mexican war he served as captain of the First New York Volunteers, and was made colonel of the Second California Infantry in 1861. In March, 1865, he was brevetted brigadier-general of volunteers. His writings include: *Treatise on the Tactical Use of the Three Arms; Treatise on Intrenchments; Special Operations of War; Field Service in War; Criminal Law in Massachusetts; Physical Proofs of Another Life.*

LITERATURE, AMERICAN AND ENGLISH. *Fiction.*—The fiction for the year 1902 was not distinguished by any special brilliance, in either England or the United States. It produced no single achievement, such as Kipling's *Kim,* to atone at once for a host of inferior productions; it introduced no new writers of the quality which compels immediate recognition, as did the author of *The House with the Green Shutters* in the previous year; it did not even show any well defined new tendencies. It will be remembered chiefly as marking the close of the prolonged and singular vogue of historic romance in this country, and as having witnessed the death of an unusual number of talented writers, such as Bret Harte and Frank R. Stockton of the older generation, and George Douglas Brown and Frank Norris, among the younger writers of promise. Of the novels which deserve specific mention, a larger proportion than usual come from England. Among the veterans of fiction, Thomas Hardy and George Meredith seem to have retired definitely from the field. The former was quite silent; the latter did nothing more notable than to contribute an introductory memoir to a new edition of Lady Duff Gordon's justly famous *Letters from Egypt.* Henry James, however, is represented with a new volume, and so are Mr. Barrie and Anthony Hope and Mrs. Humphry Ward, and the great majority of those whose reputations are already established, although in scarcely any case can the new volume be said to be a substantial advance upon their previous work.

In regard to Mr. James's latest volume, critical opinions differ widely. For some years past, this writer has steadily cultivated a wilful obscurity of style, a verbal eccentricity which renders his writings a sort of intellectual gymnastics. He excels in the art of leaving a thought half uttered, of implying rather than expressing,

of analyzing human motives down to those infinitely small quantities which other novelists disregard—the differential calculus of the emotions. This is again well illustrated in *The Wings of the Dove.* Nowhere is the plot clearly outlined; it is implied in broken phrases and in suggestive pauses. The centre of interest is an American girl, named Milly—a white, frail, red-haired girl, in clinging black, whom Mr. James reveals dimly through a verbal mist, surrounded with the halo of a fabulous fortune. It is impossible to find the page upon which he first implies that Milly is dying; nowhere does he state the fact specifically. Yet dying she certainly is, and the reader is haunted by the knowledge. There is an impecunious young Londoner, a journalist, already engaged to an English girl as poor as himself, when he first comes into Milly's life. But the engagement is a secret, because the English girl's family would have interfered. Just what combination of motives prompt the English girl to loan her lover to the dying Milly is nowhere put into words. It is not the purely disinterested desire to brighten the last days of a dying girl; it is not quite so sordid as a deliberate conspiracy to have her lover marry Milly in order to secure her fortune; the motive lies somewhere between these two extremes. Equally characteristic and individual is Mr. Barrie's latest volume, *The Little White Bird.* It is a tissue of whimsicalities, sentimental and at times rather childish. Yet no one but Mr. Barrie could have woven the day-dreams of a sentimental, lonely old bachelor into a volume of confessions which, while somewhat lacking in cohesion, are possessed of real charm and some little pathos. There is a dainty little governess whose humble romance this old bachelor watches wistfully from the safe vantage-ground of his club window, intervening now and then, like a benevolent fairy godfather to make the course of true love flow smoothly for her. And later on, it is the little governess's son David who is the recipient of the old bachelor's confidences and the chosen comrade of his lonely days. At the hands of a less skillful writer such material might easily have degenerated into mere mawkishness. Mr. Barrie, however, is quite at home in that narrow borderland between smiles and tears—the home of Sentimental Tommies—and he seldom spoils his effects by a false step. There is nothing sentimental about Mrs. Humphry Ward, whose *Lady Rose's Daughter* belongs logically to the fiction of 1902, though its serial course was concluded just too late for the published volume to bear the date of that year. In this book Mrs. Ward has broken quite away from theological problems and the discord of clashing creeds. The atmosphere of the book is the cultured atmosphere of the best London society. The centre of interest is a young woman who, thanks to heredity and early environment, has small reverence for the established conventions of life. To Londoners the name of Lady Rose awakes the memory of a forgotten scandal, long since buried with her in a neglected grave in Belgium, the memory of her flight from home and husband, her years of exile with the man she loved, the birth of a nameless daughter, her death in poverty and neglect. Years later, that daughter, proud, beautiful and well aware of the blue blood in her veins, which she must not acknowledge, works her way into London society as the hired companion of a dictatorial old lady. The world has misused her, and she feels under no obligation to respect the world's conventions. And when two men offer her love, the one a life's devotion, with a proud title and wealth; the other a fleeting joy coupled with dishonor, she chooses the latter with her eyes open. Here, however, Mrs. Ward was not brave enough to shun a conventional ending. She made the other man save the girl, in spite of herself, and later on the girl repents and marries her rescuer out of gratitude.

Since the publication of *Quisante,* Anthony Hope has been consistently working along a single line, contemporary social life, somewhat after the manner of Trollope—and in *The Intrusions of Peggy* he has produced the best example of his later method. It has two distinct claims to attention: it is the first book in which he has introduced women of real flesh and blood—women who show careful study from life; and secondly, it has for its hero a miser, whose passion for money is so strong that he is on the point of letting the woman he loves go to ruin for want of a few hundred pounds; and yet—here is really the *tour de force* of the book—the miser is so deftly drawn, so human and attractive, that he has the reader's sympathy with him throughout the story. As for Peggy herself, although she is not the heroine, her intrusions are always welcome and frequently beneficent. Among the younger reputations there are three writers of widely dissimilar aims and methods—Eden Phillpotts, Arthur Morrison, and Joseph Conrad—whose names, nevertheless, it seems natural to couple together, partly because each in his own line represents a high degree of achievement, partly perhaps because of the chance resemblance between the titles of their first successful books—*Children of the Mist, The Child of the Jago,* and *Children of the Sea.* Mr. Phillpotts's latest story is *The River,* another of his simple, rugged dramas of primitive life, redolent of the soil and dealing with men and women who live out their lives in close communion with it. The river Dart dominates the present story, and the author, who has more



AUTHORS WHO DIED IN 1902—(Upper left) Frank Norris. (Upper right) Bret Harte (Lower left) Paul Leicester Ford. (Lower right) Frank R. Stockton

than a touch of symbolism in his nature, seeks to work out a sort of intimate relation between the changing course of the river and the lives of the people who dwell beside its banks. In the tragic moments, the rapids and whirlpools of life, Mr. Phillpotts always rises to adequate heights; it is in the tranquil periods, the quiet backwaters, the broad, untroubled stretches, that he sometimes spoils his effects by extravagant simile and strained grandiloquence. No such fault can be found with Mr. Morrison. His methods are of the simplest, and he is at his best when describing, in the most matter-of-fact manner, the commonplaces of sordid misery, the pitiful gutter life of London slums. *The Hole in the Wall* goes somewhat outside of Mr. Morrison's chosen haunt. It is not a story of the Jago, but of Wapping and the Ratcliff Highway—the chosen haunt of the English sailor when ashore. The volume takes its name from that of a public house in the heart of the river-side slums, and the plot concerns a stolen pocketbook which passes from hand to hand, leaving a widening trail of blood and crime in its wake. Its crowning catastrophe, concerning a man deliberately blinded with quicklime, is depicted with a realism which, in spite of its strength, is almost too grimly horrible to be admissible in true art. Joseph Conrad is a writer whose course has been steadily upward and onward. In 1902 two volumes came from his pen, *Typhoon*, which was a sort of prose epic of a tropical storm, an Æschylean drama of the elements at war; and *Youth*, a collection of three tales of varying value. "The End of the Tether" is a study of an old sea-captain, who, having outlived his usefulness, faces ruin calmly, fighting to the last. "Youth" is a sort of modern English epic of the sea. Sandwiched in between these two is "Heart of Darkness," which probably represents the high-water mark of Mr. Conrad's talent. Its theme is an impression, taken from life, of the methods adopted by a European trading company for civilizing a certain portion of Africa. But the power of the picture is far beyond anything that a mere analysis can suggest. It is a drama of two continents in conflict, a masterly picture of the white man's greed and the black man's helpless bewilderment in the grasp of his rapacious conquerors. Above all, it reproduces with remarkable power the impression of the glare of African suns, the stillness of African forests, the sense of mystery and isolation and lurking danger that slowly undermine the white man's physical courage and moral sense, and leaves him degenerate and unnerved, equally flabby in body and in conscience. There is a remorseless, unsparing fidelity about Mr. Conrad's picture that is haunting in its sincerity. Another writer who has penetrated the mysteries of an alien civilization is Mr. A. J. Dawson, whose *African Nights' Entertainment* did for the Arab what Kipling's early short stories did for India, and whose new volume, *Hidden Manna*, reveals an intimate knowledge of Moorish life, manners and ways of thinking not to be paralleled in any other English work of fiction. The central figure is one Joseph Hassan, a half-caste already familiar to the readers of his earlier volumes, who left behind him in England several sorrowing women. One of these women, by a strange chance, becomes stepmother of the young master whom Hassan serves, and when in the course of time a son of her own arrives, and she seeks to put out of the way his elder half-brother, this problem arises—shall Hassan aid the woman, by way of reparation, or shall he be loyal to that elder brother, who is his friend and master? The way in which the problem is worked out, as well as the whole atmosphere of the story, proves Mr. Dawson both an acute observer and a trained artist. Lower in the scale, yet very clever in their way, are the group of short Egyptian tales by Gilbert Parker, gathered together under the title *Donovan Pasha*.

There are at least a dozen novels, by writers of recognized ability, which for one reason or another deserve brief mention. *No Other Way* is the title of the last posthumous story by the late Sir Walter Besant. The scene is London in the days when they still imprisoned people for debt; the heroine, a foolish young person who squandered her small fortune, and was confronted with the alternative of the debtor's prison, or of finding a husband to assume her liabilities. The only man available was a burly negro prisoner, under sentence of death, and they were duly married: but condemned prisoners are sometimes pardoned, and that was what happened in the present case. Jerome K. Jerome has so long been recognized as a humorist that a serious story from his pen is an interesting novelty. *Paul Kelver* is a careful piece of work, full of real people and real life. Especially good is the first portion, dealing with the hero's childhood, in spite of a marked tendency toward sentimentality. Less successful is the effort of another novice in fiction, *The Disentanglers*, by Andrew Lang. The title denotes a society organized for the purpose of saving eligible sons and marriageable daughters from marrying undesirable persons. When an impossible engagement looms ahead, one of the "Disentanglers" is sent for, and quietly disentangles the amorous pair by the force of superior attractions. The plot offers a chance for wild, impossible comedy; but Mr. Lang missed his opportunity. Mr. H. G. Wells gives play to his nimble and fantastic fancy in *The Sea Lady*, a novel the heroine of which is a mermaid, with an indisputable

and scaly tale. Benjamin Swift has two new stories to his credit: *Ludus Amoris*, in which a baronet's son masquerades as a groom; and *Sordon*, a new version of the old problem, whether the friends of a man afflicted with a painful and incurable disease, are justified in shortening his term of misery. Mr. Pett Ridge is one of the very few writers who have made an acknowledged success in adopting the methods of Dickens. *Lost Property* is a book after the order of *Mordemly*—the history of a London waif, from the day when, a mere infant, she became "lost property" at the Cannon Street station. The child's life in the slums is well depicted; better still, the next phase in her career, among the small shopkeepers and clerks and Camden Town dandies; for if there is one type in which Mr. Pett Ridge excels, it is the type of London cad. Mr. Robert Hichens's specialty runs to heroines with abnormal proclivities of one kind or another. The heroine of *Felix* is no exception; she is slave to the morphia habit. A story of stronger fibre is *The Four Feathers*, by A. E. W. Mason. It is the story of a young man, destined for the army, who is possessed of a nervous fear that he is a coward. At the outset of his career, he gives evidence of cowardice, and his three best friends bestow upon him three white feathers, to which the girl to whom he is betrothed adds a fourth. The manner in which he redeems himself forms the subject of the volume. Mr. Arnold Bennett is not a new writer; but his earlier volume, *The Grand Babylonian Hotel*, gave little promise of the rugged power of his new book, *Anna of the Five Towns*. In its grimness and its sordidness, it suggests comparison with George Douglas Brown's *House with the Green Shutters*. The setting is the Staffordshire potteries, with all the sombre actualities of smoke-laden air, and the narrowing creed of Wesleyanism. The father of Anna, stubborn, hypocritical, miserly, is the dominant power in these five towns that cluster along a winding road, and he dominates his daughter as well, holding both her and her separate fortune in such an iron grip that she dares not draw a shilling of it without his permission. It is under his direction that she hounds down the man she loves, pressing for payments he cannot make, until he is bankrupt and disgraced. And it is only then that Anna realizes what she has done; but even then her father's influence is too awesome a thing to be shaken off; and she does not try to struggle against it.

There are several volumes by women which deserve a passing word. *Moth and Rust* is the new volume by Mary Cholmondeley, author of *Red Pottage*. The heroine is commonplace, almost stupid; but she is passionately loyal—loyal in her love and in her sacrifice when, to shield the good name of another, she a dying woman, she does the deed that finally separates her from her weak-hearted lover. *Love and the Soul-Hunters*, by John Oliver Hobbes, is essentially a study in temperaments. The heroine is a young girl, chiefly distinguished by "a deep, unchangeable innocence which the knowledge of evil could neither destroy nor mar"; and it is the charm which this innocence exerts upon two men of radically different temperaments that gives the author an excellent chance for her distinctive subtlety and delicate play of irony. Two new writers who deserve to be watched in the future are Violet Jacobs, who has written *The Sheep-Stealers*, and "Miles Amber," author of *Wistons*. The first of these books depicts the borderland between England and Wales, in the days of the "Rebecca" riots, a century ago. Its merit lies in the fidelity of its pictures of rural scenes and characters. *Wistons* is a story of Sussex, and is concerned with the life history of three separate generations of a family in which a strain of gypsy blood has been introduced. Some English critics have suggested a resemblance to the method of Thomas Hardy. Jane Barlow is a writer to whom one looks for at least an annual volume of her inimitable Irish sketches and tales, from the familiar bog-lands of Donegal. Her latest collection is entitled *The Founding of Fortunes*.

The leading American novels of 1902 do not lend themselves readily to classification. If any one type can be said to predominate it is that of the novel of modern western life—a forceful, virile type, of which *The Pit*, by the late Frank Norris, is the most conspicuous example. And yet two of the strongest books of the year, the two which attracted most attention from critics in England, were historical novels, both written by women—*The Conqueror*, by Mrs. Atherton, and *The Valley of Decision*, by Mrs. Wharton. Of the older generation of writers, Mr. Howells, Mark Twain, Mr. Hopkinson Smith, the late Frank Stockton, Mr. Cable and Marion Crawford are each represented by at least one volume. *The Kentons* is a story depicting commonplace people and the trivialities of everyday life with Mr. Howells's usual happy fidelity. The entire routine of the Kenton family is overturned and the habits of a lifetime disarranged by the eldest daughter, who has unwisely bestowed her affections upon a most unworthy object. So the family reluctantly submit to a winter's exile from their peaceful western home, and to the uncongenial atmosphere of New York hotel life, in order to give the daughter time to learn her own mind. Like other heroines of Mr. Howells, Miss Kenton possesses the gift of magnifying molehills of sentiment into veritable mountains,

and the story may best be defined as a record of her success in keeping all her friends and relatives in a continual state of wretchedness. Mr. Clemens's new volume, *A Double-Barrelled Detective Story,* is nothing more than a parody on Dr. Conan Doyle's latest romance, and a rather vague and pointless parody at that. *The Hound of the Baskervilles* was unquestionably the cleverest contribution of the year to the order of detective novels. Its basis was a family tradition of a phantom dog of vast proportions, which appeared to the heir of the Baskervilles on the eve of his death. The reappearance of this dog on the occasion of the late heir's death offered a mystery which Dr. Conan Doyle's famous detective, Sherlock Holmes, promptly undertook to solve. Mr. Clemens's parody opens quite seriously. His hero dedicates his life to hunting down the father whose cruelty has shortened his mother's life. Owing to a pre-natal shock, caused by savage hounds, he is particularly well equipped for his task, being endowed with a bloodhound's keenness of scent. Suddenly, however, Mark Twain betrays that the whole thing is a hoax, by introducing a Sherlock Holmes of his own creating, and turning the story into a burlesque. It is a book which adds nothing to his reputation. Mr. Hopkinson Smith's *Fortunes of Oliver Horn,* on the contrary, is one of the most successful pieces of fiction which that versatile author, artist and engineer has yet produced. It is simply a record of the career of a young southern lad who breaks away from the traditions of his family and refuses to see any degradation in any honest means of earning a living. Many of the scenes are enacted in the studios of New York, and the old Academy of Design, and there is a convincing reality about them which suggests that the author was largely drawing upon a fund of congenial personal memories. The late Mr. Stockton is represented by two volumes: a collection of short stories, called *John Gayther's Garden,* and a whimsical narrative of piracy in the West Indies a century ago, entitled *Kate Bonnet.* The heroine is the daughter of a respectable, middle-aged planter, who through many years of prosaic business life has nourished a wild ambition to become a pirate chief—and his attempt to gratify it results in a series of *opera bouffe* adventures, as preposterous as those of Mr. Gilbert's *Pirates of Penzance.* Just why an author like Mr. G. W. Cable, who is inimitable in his pictures of creole types, and is capable of such delicate pathos as that of *Madame Delphine,* is not content to adhere to his chosen field, but must needs stray so far from home as the elm-shaded streets of a New England village, it would probably puzzle the author himself to tell. *Bylow Hill* is a mildly melodramatic tale of love and jealousy. The successful rival having won his bride by underhand means, is overcome with remorse and finally loses his senses and dies. There is really nothing distinctively New England about the book, excepting the elm trees. The incidents might have happened anywhere. The gift which Mr. Cable lacks, Marion Crawford has in full measure. No matter what corner of the globe he chooses for his stage setting, his atmosphere is always distinctly local, his story definite, his characters vivid and interesting. He writes frankly to entertain, and he usually succeeds. *Cecilia, a Story of Modern Rome,* involves an element of mysticism; the strange mingling of attraction and repulsion which the heroine, a young Italian girl, feels toward the hero, she can explain only on the ground that in a previous incarnation she was one of the vestal virgins, and separated from him by the binding vows of that order. Richard Harding Davis is one of the few writers who can take the soldier of fortune out of his conventional setting of the reign of Louis XIV., endow him with modern implements and modes of war, and yet succeed in making him thoroughly lifelike and convincing. *Captain Macklin* is Mr. Davis's latest addition to his gallery of soldiers of fortune.

The historical novels of the year included a number of popular successes, and at least two instances of careful and conscientious work. Gertrude Atherton took for the theme of *The Conqueror* the "true and romantic history of Alexander Hamilton." Her original intention was to write a formal biography, but gradually, she says, the instinct of the novelist carried her away, and the resulting volume is a novel of American history written in the same spirit of candor and courage that characterizes her stories of modern life. Its defects are the natural consequence of an attempt to adhere too closely to history; for no man's life, however adventurous and heroic, possesses the logical sequences that art alone can give to life. Another volume showing not only much patient research but a rare and sympathetic understanding of an entire epoch, is Edith Wharton's *In the Valley of Decision.* The author's ambition was evidently to sum up eighteenth-century Italy in a single volume—to give in one splendid, comprehensive panorama the physical, moral and intellectual life of that period; just as Stendahl did in the *Chartreuse de Parme,* or as George Eliot summed up the Florence of Savonarola in *Romola.* The resulting volume is unfortunately rather ponderous. It is weighted down with erudition. Mrs. Wharton was so engrossed in painting in her background, filling in historical detail, saturating her pages with the artistic atmosphere of the times, that she failed to give her central characters that vitality and human interest essential to fiction of the

highest type. Her volume leaves the impression of a monograph on social history rather than a romance of human lives. It is written, however, with all the dexterity and unfailing grace of style characteristic of the author of *Crucial Instances*. Among the historical romances of the conventional type that won popular favor, Miss Mary Johnston's *Audrey* deserves a word of commendation. It was a romantic tale of colonial Virginia, after the manner of *To Have and to Hold;* but in addition to this it was an interesting and careful study in feminine psychology. Charles Major, on the contrary, whose earlier volume, *When Knighthood was in Flower*, well deserved the cordial praise which it received, fell far below the standard he had set himself, in his new story, *Dorothy Vernon of Haddon Hall*, which was a sadly disappointing piece of work. *The Mississippi Bubble*, by Emerson Hough, a tale of John Law and the epidemic of speculation under the Regency; and *The Strollers*, by Frederick Isham, a story of theatrical life, on the road, a century ago, are two volumes conspicuous among the season's popular successes.

Much of the best talent in this country is being devoted to novels of the West—either the strenuous pioneer life of the plains, the mines and the forests, or the equally interesting social life of western cities, where the veneer of culture is still comparatively thin. Two notable examples of their respective types are *The Virginian*, by Owen Wister, and *The Pit*, by the late Frank Norris. In spite of the number of books embodying the cowboy in all possible forms, from the roughest caricature to the most photographic fidelity, there was hitherto no one story which could be pointed out as the novel, *par excellence*, of the cowboy. This at last Mr. Wister has produced. His Virginian is a frankly idealized type of all that is best and most truly American in the representative cattlemen of the western ranch. It is a portrait rather than a novel. The underlying thread of romance is of minor interest; what one does care for is the personality of the Virginian, his rugged sincerity, his inborn sense of justice and honor and fair play, his natural courtesy to women, his unfailing fund of humor, his soft southern drawl, curiously contradicted at times by the virile activity and alertness. As a novel, *The Virginian* undoubtedly shows structural weakness. As a picture of a phase of American life that is rapidly passing away, it is a book that will not soon be forgotten. Other rugged stories of the west that deserve mention are *The Blazed Trail*, a tale of the lumber regions, by Stewart Edward White; and *In the Country God Forgot*, by Frances Charles—a grim picture of human lives warped by the parching sterility of the Arizona desert lands.

Whatever else may be said for or against the late Frank Norris, it must be conceded that he came nearer than any other writer of his generation to reproducing in English the epic bigness of theme and the epic sweep of style that characterized the novels of Emile Zola. Norris was never satisfied with half-way measures; he was not happy until he found a symbol that would sum up in a single word all American life—Wheat; and he was so engrossed in this central symbol that he made the mistake of subordinating everything else to it. Zola could paint vast cycloramas, but in them the actors in the central tragedy always stood out in sharp relief. In *The Octopus* of Norris the principal actors seem to sink into the background, to lose themselves and become submerged under the waving fields of yellow grain. *The Pit*, Mr. Norris's last book, finished just before he died, is in this respect a notable forward stride. Wheat is still the symbol, but it is subordinated to the interest of human actors in the book. It is a story of the attempt of one man to corner the wheat market of the world. He buys and buys and the price soars steadily up; he holds on through April and May, and his fortune seems made. He holds on a day too long, and all of a sudden the new wheat comes pouring in, an overpowering flood, rising higher and higher, gradually submerging the man who is depicted standing there, like a feeble insect, striving with outstretched hands to hold back the granaries of the world. No other story of Chicago can fairly be placed in the same category. But a story which deserves to be widely read is George Horton's *Long Straight Road*. It deals with the dull monotony of humdrum married life, the dreary prospect of endless to-morrows each as sordid and as hopeless as to-day, in the homes where there are scanty means and still scantier affection. There is just one thing that relieves the sombreness of the picture, and that is the laughter and the joyous, irrepressible voices of little children, that echo through the pages and refuse to be shut out of them, just as they refuse to be silenced in real life.

Biography.—The biographical works for 1902 are not only more numerous, but also more important on the literary side than on that of history. Sidney Lee's important Life of Queen Victoria, expanded from his article in the *Dictionary of National Biography*, bears evidence of its origin, being more distinguished for its accuracy and comprehensiveness than for its charm of style. The facts of the late queen's life, however, were of a kind that may safely be left to speak for themselves; and until the appearance of the authoritative biography which is being prepared by royal command, this is probably the most satisfactory account that can be produced.

Another contributor to the *Dictionary of National Biography*, Mr. A. F. Pollard, provided the text for a sumptuous volume upon Henry VIII., more notable for its artistic merits than for historic excellence. Mr. Pollard's monograph shows conscientious labor, but his independent judgments do not appear to have been particularly inspired. His general impression of the king seems to be that, while he had a "peculiar conscience," he did such important work in the world that he could not have been altogether unscrupulous. Mr. Andrew Lang, who delights in solving historical puzzles, finds a congenial theme in *James VI. and the Gowrie Mystery*. It was an old Scottish lady of a century ago who said that it was a great comfort to think that "at the day of judgment we should know the whole truth about the Gowrie Conspiracy." Mr. Lang seems to have anticipated the Day of Judgment. With the aid of hitherto unpublished documents he has established to the satisfaction of at least a portion of his reviewers that "the Earl of Gowrie and his brother laid a trap for King James, and fell into the pit which they had digged." Mr. W. H. Wilkins was already known as the author of the sombre story of King George II.'s mother, *The Love of an Uncrowned Queen*, before the appearance of a biography of the same monarch's wife, *Caroline the Illustrious*. It is a readable volume, but of no great historic value, the great bulk of its contents being already accessible elsewhere. One English critic goes so far as to say that the second of Thackeray's lectures on *The Four Georges*, short and scrappy as it is, is more instructive and more accurate. A noteworthy contribution to Napoleonic literature is a *Life of Napoleon I.* by John Holland Rose. It is a scholarly and well-founded record, biographical rather than historical, and especially valuable because, without the omission of any really essential matters, the whole story is condensed to a readable length. The principal adverse criticism has been directed against Mr. Rose's neglect of the personal side of Napoleon's character: "Apart from his brilliant conversations," he says, "his private life has few features of abiding interest." But he sums up his subject as "the wonder worker who bridled the French Revolution and remoulded the life of France," the man who "must ever stand in the very forefront of the immortals of human story." The London *Athenæum* goes so far as to predict that Mr. Rose's volume will become the authority for English readers.

Biographies of soldiers and statesmen are not numerous. Sidney Whitman contributes a volume of *Personal Reminiscences of Prince Bismarck*, well written and readable. *Cecil Rhodes; A Study of a Career*, by Howard Hensman, is a careful and satisfactory study of a man whose personality has been hitherto comparatively little known. The author sums him up as "a mass of inconsistencies," a great opportunist, and although often headstrong, capable on occasion of great diplomacy. The history of the famous Raid is told with frank impartiality, and apparently gives the true story without reserve. A prolonged echo of the Boer war comes in the shape of numerous biographies and memoirs of leaders in the struggle. *The Memoirs of Paul Kruger, Told by Himself*, is a discursive narrative, going back to the earliest memories of "Oom Paul's" childhood, a long-winded justification of the author's share from first to last in moulding the fortunes of the Transvaal, and revealing on every page the author's strong bias and vindictive bitterness against England. It offers a rather curious contrast to another volume which appeared almost simultaneously with it—General De Wet's *Three Years' War*, written with the crisp military directness of a man who has formed his style from writing military dispatches on the battlefield, and whose sentences and paragraphs often have the sharp rattle and abruptness of firearms. There is nothing of the special pleader in General De Wet's book. It is simply a plain, unvarnished tale, thoroughly sincere and often eloquent by its very brevity. Of the two books, it is certainly the broader-minded.

The biographies of well-known writers are uncommonly numerous. The list includes the sympathetic two-volume life of Lowell, by the late Horace E. Scudder, which admirably supplements the two volumes of Lowell's Letters, edited a few years ago, by Professor Norton. Mr. Scudder's lifelong intimacy with Lowell fitted him for writing just the sort of biography that was most needed. Of Lowell's position in letters there is not very much room for discussion; but his life was so rich in associations, his contemporaries and associates included so many men who have helped to make New England famous, that it is the personal side even more than the literary which interests the general reader. And it is this side Mr. Scudder has done ample justice. A kindred interest attaches to the *Autobiography* of Sir Walter Besant. One of the last survivors of his own generation of novelists, he had for fully two score years been closely associated with the London literary circle; while his warm espousal of the cause of young writers, and his persistent efforts to establish a system of fair dealing between author and publisher, all go to make his personal account of his life an important document in the history of English letters during the second half of the nineteenth century. There have been a number

of recent additions, of very uneven merit, to the well-known English Men of Letters series, founded by Mr. Morley. Augustine Birrell contributes a volume upon William Hazlitt, whose name was one of the few notable omissions from the earlier series. As a biographer, Mr. Birrell has acquitted himself well of his task; but from the critical side his work is disappointing. He has very largely shirked the difficult task of estimating Hazlitt's position and worth as a literary critic. Herbert Paul's *Matthew Arnold,* in the same series, is a bright, readable little volume, written in an agreeable, epigrammatic style. As a critical estimate of Arnold's greatness, however, whether as poet or essayist, it has been pronounced inadequate. Sir Arthur Lyall's *Tennyson* has been summed up as an old-fashioned volume, sound in judgment, and free from exaggeration. It is a scholarly appreciation, adapted to the needs of the series, although it does not add anything especially new. Thomas Wentworth Higginson is author of the volume upon Whittier, which although sympathetic is little more than a compilation, and consists so largely of copious extracts from Whittier's poems as to give the impression of an autobiography. The same comment applies in a measure to a far more able and comprehensive work, *Charles Dickens, His Life, Writings and Personality,* by Frederick G. Kitton. It is written in a vein of contagious enthusiasm, fearlessly bringing out the intimate details of Dickens's life, quoting the thousand and one idle utterances of the moment, little absurdities of personal taste, a strange medley of incidents, from which the novelist's character shines forth with strange and unexpected clearness. George Meredith is the subject of a small monograph which its author, Walter Jerrold, calls "an essay towards appreciation," but which has been pronounced too indiscriminating to be of special value.

The Dumas centenary naturally bore fruit in the shape of biographies and critical appreciations; and perhaps the most valuable contribution from English sources was the volume *Alexandre Dumas, Père, His Life and Works,* by Arthur F. Davidson. It is the product of fifteen years of careful study, and has been already pronounced both well written and authoritative. The author has not attempted to veil or extenuate Dumas's well-known weaknesses, but he has sought to do full justice to the nobler side of his character. The facts are drawn freely from Dumas's own personal narrative, with the result of making the book as entertaining as fiction. On the other hand, it is weak and unsatisfactory from the side of literary criticism. Two other volumes which deserve at least a passing record are *Tolstoy, His Life and Work,* by John Coleman Kenworthy; and *Maxim Gorky,* by E. J. Dillon, who gives the impression of knowing the Russian people and literature with some thoroughness, and of being well qualified to discuss the personality and the writings of the recently discovered "tramp-novelist."

Criticism and Essays.—Professor Saintsbury's valuable and comprehensive *History of Criticism and Literary Taste in Europe* has been augmented by a second volume, covering the period from the Renaissance to the Decline of Eighteenth Century Orthodoxy. Covering as it does only three centuries, it admitted of more unity of treatment than the earlier volume. This period witnessed the rise and fall of the neo-classic theory of criticism which for a time dominated Europe, and whose chief representatives in England were Dryden, Pope, and Johnson. The admirable "Library of Literary Histories," which already included volumes upon India and Ireland, has been increased by a *Literary History of Persia,* by Edward G. Browne, who brings his subject down to the time of Firdausi, reserving for another volume the consideration of later Persian writers. This is a work of considerable importance, being really a pioneer work in the field, both on the historical and the literary side. Volumes of critical essays are represented by contributions, among others, from W. C. Brownell, George Paston, G. K. Chesterton, and Sir Leslie Stephen. Mr. Brownell has gathered together six essays into a volume of *Victorian Prose Masters,* including Thackeray, Carlyle, George Eliot, Matthew Arnold, Ruskin, and George Meredith. Mr. Brownell undoubtedly has decided limitations in his sympathies and in his comprehension; and his style is often heavy and none too lucid. Yet even his most unsatisfactory judgments contain something that is both stimulating and instructive. George Paston has produced two volumes of miscellaneous essays within the period of the year, *Little Memoirs of the Nineteenth Century,* and *Sidelights on the Georgian Period,* the former consisting of a series of delightful little biographical vignettes, the latter a more miscellaneous collection of papers ranging from "A Burney Friendship" to "The American in England," a study of the Spanish scholar and Harvard professor, Ticknor. And in all there is the same familiarity with the period and the same easy, cultured, agreeable style. Sir Leslie Stephen has continued his *Studies of a Biographer* with a second series, the studies ranging all the way from Stevenson to a curious minor philosopher, such as Godwin was. No survey of the year's essays would be complete without some mention of *Twelve Types,* by G. K. Chesterton, author also of *The Defendant.* As far as sheer cleverness goes, Mr. Chesterton is attracting considerable attention

in England. He is a thinker of some power, he has the gift of clear expression, and what he says is not merely readable but stimulating. His chief fault is over-confidence and self-assertion. In *Twelve Types* he passes judgment successively upon Savonarola and Scott, St. Francis and Tolstoy, all with the same air of infallibility. Boldness, however, is so rare among the writers of to-day that Mr. Chesterton's very recklessness has won him favor among English critics. A novelist like Mr. Howells is never more entertaining than when he consents to talk frankly and genially about his own theories and methods of work. *Literature and Life* is Mr. Howells's latest volume of essays, dealing with a heterogeneous collection of subjects, ranging from the little queen of Holland to a country circus. A few only of the papers included touch upon literary methods; but all throw interesting light upon the author's present mood. There is apparent throughout a lack of enthusiasm, a sober monotone which explains why the novels of Mr. Howells's later manner are so much more commonplace and humdrum than those of his earlier and more impetuous days—the days of *April Hopes* and *Silas Lapham*. *The Unspeakable Scot*, by T. C. Crosland, an English journalist, is a collection of essays whose intent is indicated by the title. It evoked much controversy and some pique on the part of Scotchmen. Throughout his attack the author gives the impression of trying to annihilate by sheer vociferousness.

LITTLEFIELD, Charles Edgar, congressman from Maine since 1899, attracted wide attention during 1902 by his advocacy of legislation for the control and regulation of trusts and corporations. He was born June 21, 1851, at Lebanon, York County, Me. He received a common school education in the schools of his native village, continued his studies privately, and after reading law for some time was admitted to practice in 1876. He entered political life in 1885 as a member of the lower house of the Maine legislature, was chosen speaker in 1887, and in 1888 was elected attorney-general of the State, serving from 1889 to 1893. On June 19, 1899, he was elected a member of the national House of Representatives at a special election called to fill the vacancy caused by the death of Nelson Dingley. He was re-elected in 1900 and 1902.

LIU-KUN-YI, Viceroy of Nanking, China, died on October 15, 1902. He was born about seventy-five years ago, and although in his youth he lacked some of the advantages of Chinese literary training, made his way to the front by his intellectual ability and independence of character. After occupying several minor official positions he came prominently into notice upon his appointment as viceroy twenty-five years ago, at once manifested an interest in western influence and methods, and was in favor of their cautious and experimental introduction into China. In his province he organized the military and surrounded himself with an army of 20,000 men, which gave him the greatest advantage in enforcing order and enabled him in 1900 to prevent his disaffected subjects from joining the Boxer movement. Though loyal to the Manchu dynasty, he strongly disapproved of the unreasoning conservatism of the official class surrounding it, and favored a more modern organization of government. He was recognized as one of the few great Chinamen who combined a just appreciation of foreign methods and institutions with good judgment as to the extent in which they were useful to his country.

LIVE STOCK. See Agriculture, and Dairying.

LORENZ, Adolf, professor of surgery in the University of Vienna and head of the orthopædic department in the General Hospital of Vienna, visited the United States during the latter part of 1902 and performed many operations by his "bloodless method" in cases of congenital dislocation of the hip. Dr. Lorenz was born in northern Austria in 1854, and was educated in the schools of his native district and the University of Vienna, from which he graduated in 1880. Having a predilection for surgery he devoted himself to this, becoming the assistant of Professor Albert in the university. His hands became covered with eczema caused by the necessary antiseptics, and consequently he was prevented from following general operative work, and at the advice of Professor Albert he devoted himself to orthopædic surgery. His first important achievement was the improvement and development of the method of reducing congenital dislocation of the hip bone first demonstrated by Professor Hoffa of Würzburg in 1890. This was a very difficult and bloody operation, involving the cutting of many muscles and the hollowing out of the socket for the hip bone. By stretching the muscles and forcing the head of the hip bone into its proper place Dr. Lorenz was able to accomplish the same result with less cutting and the operation was known as the Hoffa-Lorenz operation. After several operations he determined to trust entirely to manipulation and in 1895 demonstrated his method to the Medical Congress in Berlin. Dr. Lorenz came to the United States at the invitation of J. Ogden Armour, of Chicago, to operate upon his young daughter, but in addition gave clinical demonstrations before the surgeons and students of many cities where he stopped, and was received with enthusiasm by both the medical

profession and the laity. His operations on the poor in metropolitan hospitals were greatly appreciated by the public, and by vote of the board of aldermen of New York City, the freedom of the city was conferred upon him. In England he was received with less enthusiasm.

The so-called "bloodless method" of reducing congenitally dislocated hips, while not original with Lorenz, has yet attained in his hands a degree of success that no other surgeon had reached. In cases of this nature, the head of the thigh bone (femur) lies out of and above its socket on the surface of the hip bone (ilium), and is held there by ligaments and the shortened and contracted muscles. The socket from disuse is usually undeveloped and shallow. Lorenz's method in brief, is to break up by forcible manipulations the adhesions, and to tear or stretch the muscles and other soft tissues so that the bone may be pulled into place again. This being done the limb is extended in the direction of its long axis and powerful traction made by assistants while the surgeon guides the head of the bone into its socket. When the head reaches the proper position the limb is quickly abducted and rotated outward, and the head slips into place with a snap. It is retained in position by a plaster splint encircling both hips, which is worn for months, the child being meanwhile encouraged to run about to fix the head more firmly into its socket. Operating by this method Lorenz had no deaths in Austria, and a smaller proportion of failures than by the older operations, in which the knife was used to divide rigid muscles. That the operation is not without danger, however, has been abundantly demonstrated during the visit of the Vienna orthopædist to this country. In an editorial article in the *Journal of the American Medical Association* it is stated that out of the few carefully selected cases operated on in Chicago, there was one instance of fracture of the femur, one of extensive hematoma (blood tumor), and one of extensive laceration of the perineum. Lorenz also reports three deaths from chloroform anæsthesia in 360 cases—doubtless the result of the enormous shock incidental to the necessary manipulations. For a description of Lorenz's personality, appearance and action in the operating room, consult Ferris's "Adolf Lorenz and His Work," in the *Medical Critic*, New York, December, 1902.

LORM, Hieronymus. The pseudonym of Heinrichs Landesmann (*q.v.*).

LOUISIANA, a gulf State of the United States, has an area of 48,720 square miles. The capital is Baton Rouge. Louisiana was part of the territory sold to the United States by France in 1803, and was admitted as a State April 30, 1812. The population in 1900 was 1,381,625; in June, 1902, as estimated by the government actuary, it was 1,438,000. The population of New Orleans, the largest city, was 287,-104 in 1900.

Finance.—The balance in the treasury of Louisiana January 1, 1901, was $1,305,-691.64. The receipts during the calendar year 1901 were $3,892,308.27, the expenditures, $3,775,567.75, and the balance December 31, 1901, $1,422,432.16. The State debt at that date was $10,877,800, all bonded. No figures for 1902 were available.

Agriculture and Industries.—Cotton, the most important crop of the State, yielded more in 1902 than in 1901, but was still considerably below the ten-year average. Cotton receipts at New Orleans from September 1 to December 31, 1902, were 1,374,-053 bales, as against 1,327,093 and 1,509,916 bales respectively for the corresponding months of 1901 and 1900. The Census Bureau reported 2145 gins in the State December 13, 1902, and 670,485 bales already ginned. The amount remaining to be ginned was estimated at 159,908 bales. This would make the 1902 crop 830,393 bales. The census reported 709,041 bales for 1899. The Department of Agriculture reported 262 pounds per acre in 1902. The value of the crop was estimated at $35,000,000. Willet and Gray place the 1902 sugar crop at 250,000 tons against 310,000 tons in 1901. The average price of raw sugar during the year was 3.54 cents per pound, which would make the 1902 crop worth $17,710,000. The decreased yield was due partly to a smaller acreage and partly to dry weather in the early summer. Inasmuch as Louisiana produces much more sugar than all the rest of the United States, impending reciprocity with Cuba was the all-absorbing topic among sugar growers. The most important development in the State was the increase in number of the irrigated rice-fields in the western part of the State. The investment of Northern and Western capital in irrigation canals and pumping plants continued as rapidly as in the two or three years preceding. Although the season was very unfavorable for rice in 1902, the total yield was considerably larger than in the preceding year because of increased acreage. The rice shipments up to the end of 1902 reached 949,785 sacks, as against 898,628 sacks for 1901. The total crop of rice in 1901 was 1,397,460 sacks. The drought in the early summer of 1902 not only injured the fields which cannot depend wholly on irrigation, but in places caused an insufficient supply of water for the irrigating canals because of the rapid growth of irrigating systems, causing a depletion of the more available streams. Early estimates valued the 1902 crop at $9,000,000. The *Crop Reporter* shows a corn crop of 16,784,762 bushels,

valued at $11,077,943, from an acreage of 1,342,781 acres. The horses in the State January 1, 1903, were valued at $8,708,344; mules, $11,797,399; milch cows, $4,086,-356; other cattle, $4,635,570; swine, $3,334,795.

Among industries, lumbering showed much activity. New Orleans increased more in importance as a grain and cotton market than any other port on account of increased railroad facilities, while the development of the Beaumont oil field greatly increased financial transactions in New Orleans during 1902. Bank clearings in 1902 were $677,111,109, as against $602,264,116 in 1901.

Railroads.—According to the last report of the Louisiana Railroad Commission the total railway mileage in the State of Louisiana at the end of the fiscal year 1901 was 2662 miles; for 1900 the mileage was 2425.4 miles. The gross income of railroads for Louisiana was $17,120,223.41 for the fiscal year 1901. New construction in 1902 amounted to 170.56 miles according to the *Railway Gazette.*

Legislation.—The regular biennial session of the General Assembly of Louisiana convened on May 12, 1902. Several important laws were passed, including a revision of the banking laws and a reorganization of the educational administrative statutes.

The amended banking laws provided, among other things, that companies doing a trust banking business should not have power to issue notes as previously; that they should have at least $100,000 paid in capital instead of a minimum capital of $10,000, and that they keep on deposit partly in their own vaults and partly with other banking institutions, at least 25 per cent. of their demand deposits; but savings banks deposits subject to a withdrawal notice should not be construed as demand deposits.

The revised educational act created a State board of education to consist of the governor, the superintendent of public instruction, the attorney-general, and seven other citizens, one from each congressional district, appointed by the governor. The State board was authorized to appoint for each parish in the State except that of Orleans, a board of parish directors, to prepare rules for the government of the public schools of the State, to prescribe uniform text-books, to require reports from the parish school superintendents, and to have the power of dismissal for cause. The direct supervision of the public schools was to vest in the State superintendent and in the parish superintendents. Parish school boards were authorized to establish graded schools and central or high schools when necessary. Minimum curricula were prescribed by the act for elementary schools. In order to aid those teachers who had not had the advantage of a professional training and who could not for any reason pursue the full course at the State normal school, summer normal schools with sessions of not less than four weeks each were directed to be established. All apportionment of funds appropriated by the legislature for educational purposes were directed to be distributed by the State superintendent, and the local authorities of parishes, cities, and towns were authorized to levy a tax of not exceeding six mills. All the public schools of the parish of Orleans were placed under the control of a board of directors consisting of twenty members, eight of whom were to be appointed by the governor and twelve by the city and council of New Orleans. A law of 1877 prohibiting the police juries of parishes or municipal corporations from making any appropriations in excess of the actual accruing revenue of the year, or of issuing warrants or evidences of indebtedness except against money actually in the treasury, was modified in 1902 to prohibit such juries or corporations from making appropriations in excess of the estimated revenues. These revenues were to be applied in order: (1) To statutory charges; (2) to payments under time contracts; (3) to usual and necessary indebtedness incurred by ordinance and resolution. Any estimated excess of income over and above these charges might be anticipated in contracts made for public improvements and bonds issued therefor; such bonds should be payable in ten years and should not bear more than 5 per cent. interest. In case of emergency, municipalities were authorized to borrow money, but its repayment should constitute a fixed charge in the following year.

Among laws affecting commerce and industry passed by the legislature were the following: The right to borrow money already given to various semi-public corporations and to sugar and rice mills, was extended to cotton and other manufacturing concerns; an act to provide for the organization, regular supervision and inspection of local and foreign building, building and loan, or homestead associations or companies, and defining their rights, powers, and privileges; an act prohibiting insurance companies from authorizing or allowing non-residents of the State to act as their agents or representatives in the issuing of policies in the State; an act defining banking associations and savings banks and directing that they must be organized by citizens of the State, and prescribing more stringent rules and regulations for their operation; an act authorizing police juries throughout the State to sell and grant franchises on public roads for the construction of electric railways; an act authorizing all municipal corporations having less than 50,000 inhabitants to regulate local pool rooms and turf exchanges; an act creating boards of examiners of plumbers and providing that all plumbers should be licensed by this board; an act

creating an oyster commission of five persons to be vested with power to regulate and develop the oyster industry; all the beds of rivers, creeks, and bays connecting with the Gulf were declared to be held in common for the equal benefit of residents of the State; the closed oyster season was declared to be from May to October inclusive; the use of dredges was prohibited; and the commission was directed to lease oyster lands under proper conditions and an armed patrol was authorized to see that the law was enforced. Railroad corporations were authorized to construct roads in Louisiana and to buy or merge with other railway lines excepting those which were competing and parallel. Street railway companies were directed to provide separate cars or separate portions of cars for white and colored passengers. Passengers who do not obey the provisions of this act were made subject to fine, and officers and employees were also made amenable to fine or imprisonment if they did not observe the law. Practically all of the Southern States have enacted that steam railway companies should provide separate accommodations for whites and blacks, but enough opposition has hitherto been made on the score of expense by street railway companies to prevent an extensive application of the same law to street railway companies. The hours of labor to be permitted by law on street railways was changed from a maximum of twelve hours with one-half hour off for dinner. to a maximum of ten hours to be embraced within twelve consecutive hours.

Other acts passed by the legislature were as follows: The course of the governor and his protest to the President was approved respecting the alleged use by the British government of the ports and waters of Louisiana as a base for obtaining military supplies to be used in the South African war. The power of aldermen and mayors was increased in cities, towns, and incorporated parishes consisting of from 1000 to 2000 inhabitants. The time for holding elections in the parish of Orleans and city of New Orleans was changed from the odd to the even years, the next election to be held in November, 1904, and every fourth year thereafter. The governor was authorized in his discretion to direct the State examiner of banks to examine at any time the accounts of any State or district officer, board, or employee.

A State insurance board was created to consist of the governor, auditor, and treasurer, to take over the insurance on behalf of the State of all public buildings, collecting the premiums as if they constituted a private company and investing the surplus if it seemed wise, in bonds of the State of Louisiana or of some political subdivision thereof. A firemen's relief fund was authorized to be established in the city of New Orleans for the pensioning of disabled firemen and the widows and orphans of deceased firemen, and a board of trustees was created to draw up the necessary regulations. A board of commissioners was established to consist of three members to confer with similar boards created by other States for the purpose of considering and drafting uniform laws where uniformity is desirable in the laws of the various States and Territories, and where the subject matter is outside of the jurisdiction of Congress. A board of commissioners consisting of the governor and four other members was created to take charge of the exhibit of Louisiana at the Louisiana Purchase Exposition, and $100,000 was appropriated to be expended under the direction of the board. An insane asylum for colored persons was directed to be established and a board of administrators to consist of eight members was created.

In accordance with the provisions of the revised constitution of 1898, misdemeanors and minor offenses were graded by enactment of the General Assembly and minimum and maximum penalties prescribed. Another act directed that minors under sixteen should be kept separate from other prisoners and should have a separate trial, and a further law directed that prisoners who had never before been convicted might by specially meritorious conduct receive double the amount of commutation authorized by previous laws.

June 3 of each year was declared to be a legal holiday, to be called Confederate Day. The senators and representatives of Louisiana in Congress were urged to secure the passage of an act refunding to the Cotton States the amount collected under the unconstitutional cotton tax from 1865-67 inclusive, and amounting, as was estimated, to $66,000,000. An amendment to the constitution was proposed, to be voted on at the November elections, making changes in the regulations governing the supreme court and the court of appeals, and also proposing that that article of the State constitution be stricken out which directed that no person between the ages of twenty-one and sixty should be permitted to vote who had not paid his poll tax for the two years preceding.

The general law governing the sale of liquor and providing local option was changed at the session of the legislature in 1902. The law now provides that whenever a police jury orders an election to ascertain the opinions of the voters of a parish regarding the sale of liquor, the result of such an election shall govern the actions of all municipal corporations, and that no municipality shall have the right to sell intoxicating liquors if the general election throughout the parish prohibit such sale, until another election shall be ordered by the police jury of the parish and a

change in the sentiment of the people of the parish, as recorded at the polls, shall occur.

Suits and Legal Decisions.—John Hyde, statistician of the Department of Agriculture, brought suit, on February 25, against H. & B. Beer, cotton factors of New Orleans. In a cable despatch to Liverpool, they had stated that in view of the fact that Congress was investigating irregularities in his department, suspicion attached to the estimates issued by him. Hyde claimed that the report was untrue, and had seriously injured his reputation.

Miscellaneous.—Early in April, Governor Heard reported to Secretary Hay that the British government, whose agents were buying horses and mules in Louisiana for the army in South Africa, had established a "camp" near New Orleans. Upon investigation, it was found that his fears were groundless, the camp being simply a place where the animals were received and temporarily kept, and that neutrality laws had not been violated.

Revival of the "Star Car."—The question of reviving the old "Star Car" idea, which provided separate cars for negroes, was discussed seriously during the year. Finally, on November 4, a "Jim Crow Car" law went into operation. One writer says: "For some years past there has been a steadily increasing demand for separate cars. The advocates of the measure claim that the negroes, as a race, are reverting to hoodlumism, if not to actual barbarity; that their street manners have been rapidly deteriorating under the dispensation of freedom; that it is no longer safe to permit all colored men to enter cars in which there are ladies and children, and that since it would be unsafe to intrust conductors with the right or the duty of discriminating, the taboo must be drawn against them all. They show that the blacks have been actually free more than thirty-five years; that they have had every opportunity of education and advancement; that for nearly a decade they held control in politics and government. And now, as the argument runs, they find the negro lower in the social scale than he was during the era of slavery. His morals are lower, his criminal record infinitely more discouraging, his condition from every point of view deplorable. They cannot legislate him into frugality, self-respect, good behavior, or civilization, but they declare that they will endeavor to contract the field of his objectionable activity. The proposed law as outlined in the New Orleans papers is very carefully drawn, and promises a most effective operation. It provides for the arrest and punishment of any and every one who attempts to violate it, and it imposes heavy penalties on street-car companies whose officials neglect the least of its injunctions. The spectacle of New Orleans resurrecting, after a generation of disuse, the old, half-forgotten star cars of 1866, contains much food for disturbing thought. It proves, at least, that the community is convinced of the necessity of the expedient."

The legislature of Louisiana met in May and re-elected Samuel D. McEnery as United States Senator for the full term of six years commencing March 4, 1903, and ending March 4, 1909.

State Officers.—For 1901 and 1902: Governor, W. W. Heard, elected for four years, term ending April, 1904; lieutenant-governor, Albert Estopinal; secretary of state, J. T. Michel; assistant secretary of state and commissioner of insurance, Eugene J. McGivney; auditor, W. S. Frazee; treasurer, L. E. Smith; attorney-general, Walter Guion; superintendent of education, J. V. Calhoun; land commissioner, James M. Smith—all Democrats.

Supreme Court: For 1902 and 1903: Chief justice, Francis T. Nicholls; associate justices, Joseph A. Breaux, Newton C. Blanchard, Frank A. Monroe, and Olivier O. Provosty—all Democrats.

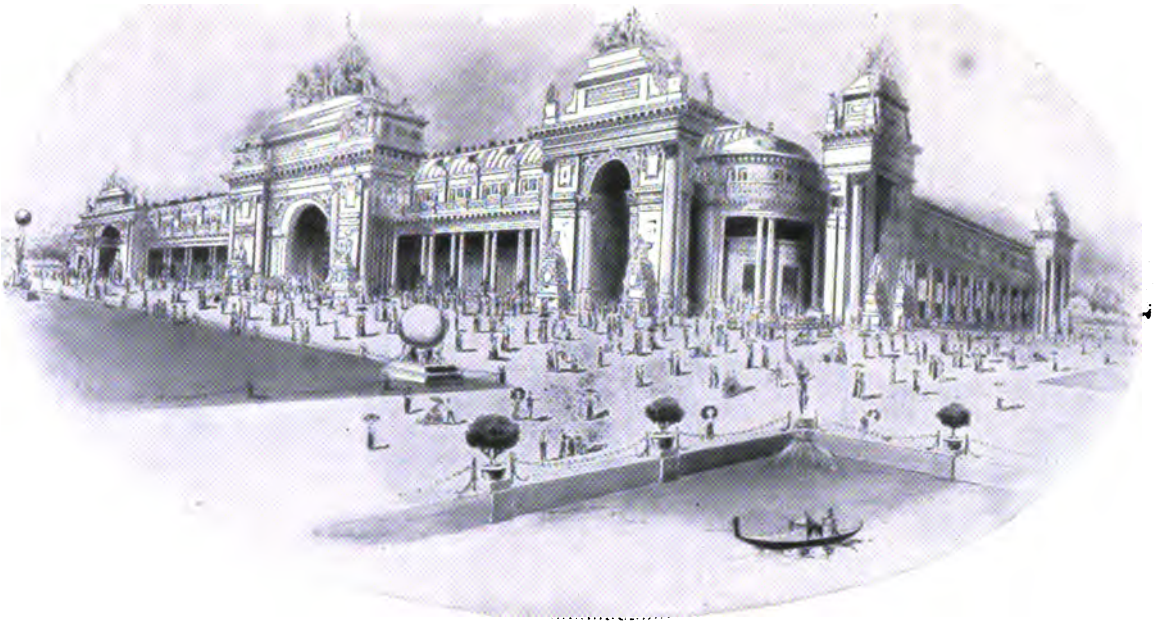
For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

LOUISIANA PURCHASE EXPOSITION. During 1902 the work of preparation progressed rapidly. The organization for all departments was perfected. The site, which was chosen in 1901, was handed over in due course, and much of the ground, embracing an aggregate of 1190 acres, was graded and prepared for construction purposes. According to the perfected plans, the exhibits are to be placed in fourteen buildings. Of these, two were nearly finished before the end of the year. Several others were well under way and arrangements were in progress for speedy erection of all others. To carry on this work, and also the equally intricate task of the publicity department (see FRANCIS, DAVID R.), about $2,000,000 were expended and contracts to the extent of about $5,000,000 were signed. In accordance with the restrictions laid down regarding control of the finances, the sums paid out were not taken from the federal appropriation. This will not be touched until the corporation's expenditures reach $10,000,000. An immense structure, having twice the frontage of the treasury building at Washington, is to be erected in behalf of the United States government. The site has been laid out and graded for building purposes. According to the plans, the agricultural building will be the largest ever

erected for a single expositon exhibit. One of the most interesting facts so far announced concerning space for exhibits is that 200,000 acres, covered, will be available. The exposition buildings are being arranged in a semicircle fully a mile and a half in length, the whole series fronting upon terraces and cascades. The intermural transportation system in course of construction will be nearly eight miles long. During the year the list of States and Territories certain to participate was brought up to eighteen. Their contributions in the shape of appropriations exceeded $2,500,000. Notifications were also received from twelve other States and Territories to the effect that they intended to support the enterprise in a practical way. The promised subscriptions from these latter reached nearly $1,500,000. The governors of twenty-five States and Territories notified the managers that the legislatures, meeting during the winter of 1902-03, would consider bills for appropriations in support of the exposition. Commissions were appointed in thirty-one States and Territories to cooperate with the exposition authorities, and action of a similar character was contemplated in nearly all the remaining States. One of the special and original features of the exposition was developed during the year and promises to become a great attraction. It includes exhibits from the Philippines, Porto Rico, Hawaii, Guam, and Samoa. There will also be an exhibit from Alaska. The foreign exhibit arranged for in 1902 includes Cuba, and nearly all of the Central and South American Republics, Great Britain, Germany, France, Mexico, Canada, Japan, China, Greece, Belgium, Switzerland, and several others. Some who declined on first invitation because they deemed the time for preparation too short, reconsidered their decision on learning that Congress had postponed the actual opening until 1904. The aim of the exposition authorities is to introduce as many special and original features as possible. In pursuance of this policy, arrangements were made for an airship tournament, with a prize of $100,000 for the winner and other prizes aggregating $100,000 more, for less successful competitors. Before the end of the year many applications from exhibitors, anxious to display and compete, were received. They included representatives of the two great schools of aeronauts—those who favor the aeroplane principle and the advocates of the dirigible balloon. Word was received from Sir Hiram Maxim and M. Santos-Dumont to the effect that they would endeavor to be present. Another special feature of the exposition will be the introduction of manufacturing exhibits showing each and all of the processes in actual operation. A proposal was also made for the exhibition of a model city. This idea, modified, is to be carried out. It will embrace the setting forth, in a practical working way, certain model methods and features of what is considered the best in municipal matters up to the time of the exposition opening. The administration building is to have grouped about it certain service buildings, such as a post-office, hospital, library, etc. It is possible that the idea will be developed so that the curbing, sidewalks, street lamps, street signs, paving, etc., will be treated in a model form. Among the developments of the year regarding the completeness of the exposition was a movement, likely to be successful, for the erection of a religious building, to cost nearly $500,000. The plan is to have in this structure exhibits of a religious character. In its largest view, according to the opinion of Mr. Schroers, chairman of the committee on education, the fair should include a consideration of the foundations of religious faiths, should "review the triumphs of religion in all ages, set forth the present state of religion among the nations, and its influence over literature, art, commerce, government, and family life." The dedication of buildings has been fixed for April 30, 1903. The President, the cabinet, members of the Senate and the House, the diplomatic corps and all governors have been invited. Representatives of other countries not included in the regular diplomatic list have also received invitations.

LUTHARDT, Christoph Ernst, a German theologian, died in Leipzig, September 21, 1902. He was born in Maroldsweisach, Lower Franconia, March 22, 1823, and after study at the universities of Erlangen and Bonn and service as teacher in the Munich gymnasium, became privat-docent at Erlangen in 1851. Three years later he was made extraordinary professor of theology at Marburg, and in 1856 was appointed professor of systematic theology and New Testament exegesis at Leipzig. In 1887 he became privy church councilor, in 1893 a privy councilor of Saxony, and from 1871 until his death was canon of the Meissen cathedral. He edited the *Allgemeine evangelisch-lutherische kirchenzeitung*, which he founded in 1868, and published *Das Johanneische Evangelium* (1852-53); *Die Lehre vom freien Willen* (1863); *Kompendium der Dogmatik* (1865); *Der Johanneische Ursprung des vierten Evangeliums* (1874); *Systematische Theologie* (1884); *Gesammelte Vorträge* (1876); *Die Kirche in ihrer Bedeutung für das öffentliche Leben* (1882); *Zur Einfuhrung in das akademische Leben und Studium des Theologen* (1892); *Die vier Evangelien* (1899). His *Erinnerungen aus vergangenen Tagen* appeared in 1889.

LUTHERAN CHURCH IN THE UNITED STATES. The first synod, or ministerium, of the Lutheran Church in this country, that of Pennsylvania, was



LIBERAL ARTS BUILDING, Louisiana Purchase Exposition

organized in 1748, and the second, the ministerium of New York, twenty-five years later. Lutherans throughout the world number more than 58,000,000, including in the United States and Canada, 9,000,000 baptized members. The church in America is a polyglot denomination, consisting of English, German, Norwegian, Swedish, Danish, Icelandic, Finnish, Slavonian, Lettish, and French speaking peoples—a diversity of language to which is due the numerous synodical organizations, since in faith the church is united. The four general bodies and fifteen independent synods together embrace 62 district synods with 7090 ministers, 11,678 congregations, and 1,723,819 communicant members; 4478 parochial schools having 3170 teachers and 184,902 pupils; and 6104 Sunday-schools, having 57,246 officers and teachers and 525,-467 scholars. The benevolent contributions for 1902, exclusive of congregational and local expenses, aggregated $1,252,466.

The various divisions are represented as follows: *General Synod,* an English body and the oldest general organization, dating from 1821—24 synods, 1231 ministers, 1578 congregations, and 202,531 members, contributions, $270,547; *General Council,* established in 1867, composed of English, German, and Swedish adherents —10 synods, 1303 ministers, 2106 congregations, and 361,048 members, contributions, $290,291; *Synodical Conference,* a German division, founded in 1872—5 synods, 2129 ministers, 2772 congregations, and 599,951 members, contributions, $335,740; *United Synod, South,* organized in 1886 and embracing an almost exclusively English constituency—8 synods, 215 ministers, 433 congregations, and 41,795 members, contributions, $22,105; *Independent Synods,* German, Norwegian, Danish, Icelandic, and Finnish in nationality—15 synods, 2212 ministers, 4789 congregations, and 518,494 members, contributions, $333,783.

The educational and charitable interests of the church comprise 215 institutions, whose property value and endowment amount to $12,062,933. There are 116 educational institutions, of which 23 are theological seminaries, 50 colleges, 32 academies, and 11 colleges for women, having in all 898 professors and instructors, and 13,765 students, and libraries aggregating 342,610 volumes. The charitable institutions, 99 in number, include 43 orphanages, 18 homes for the aged, 19 hospitals, 11 immigrant and seamen's missions, and 8 deaconess institutions, providing for 23,709 inmates. Many periodicals are issued in English and German, and a considerable number also in Norwegian, Swedish, Danish, Icelandic, Finnish, French, Slavonian, Lettish, and Esthonian. The General Synod conducts a successful mission in India and has numerous missions in the United States; the general council maintains more than 600 missions in its home department, and in the foreign field is represented in Porto Rico and East India.

The nineteenth biennial convention of the Synodical Conference was held in Milwaukee, Wis., beginning on July 23, 1902. Missionary topics occupied a prominent place in the discussions of the conference, a full report being presented on the operations among the Southern negroes. Total receipts from all sources during the last two years were $36,086. Additional workers are to be placed in the field, and one or more preparatory schools for negroes are to be established. The single English synod under the Synodical Conference requested of the general body cooperation in carrying on its English missions. Foreign missions in East India and Brazil also are supported by the Synodical Conference. Its next meeting (1904) will be in Winona, Minn. The United Synod, South, held its eighth biennial convention, beginning May 7, in Charleston, S. C. In the Japanese mission, several native pastors have been secured who are eminently successful among their own people. The convention recorded its willingness to cooperate with the northern bodies in developing its territory, especially the Gulf region, where many Lutherans are settling. Announcement was made of success in securing $30,000 for the endowment of the theological seminary at Mt. Pleasant, S. C., thus enabling the institution to employ an additional professor. In 1904 the United Synod, South, will meet in New Market, Va. The General Synod and General Council hold conventions in 1903, in Baltimore and Mansfield, O., respectively. The Maryland general conference of Lutherans in America, April 1-3, 1902, in Philadelphia, was attended by many representatives from the General Synod, General Council, and United Synod, South. It was devoted to discussions on the doctrine, worship, and life of the church.

LUTHER LEAGUE OF AMERICA, a society in the Lutheran Church, organized in 1895, the object of which is the development of greater Christian activity, particularly among the young people. Local organizations exist in many of the States, fourteen having State leagues. Reports have been received by the statistical secretary from 675 local organizations, in 28 States, with a total membership of 34,-235; the number of local organizations is, however, nearly twice that noted above, as many have failed to return reports. There are also several district leagues in States not yet organized. The *Luther League Review,* edited by E. F. Eilert, New York City, is published monthly, and the league issues also the *Lutheran Historical*

Calendar. President, William C. Stoever; assistant general secretary, C. G. Grauer; statistical secretary, Charles K. Hunton, Columbus, O.

McCOLL, Hon. ANGUS JOHN, chief justice of the Supreme Court of British Columbia, died January 16, 1902, at Victoria, B. C. He was born November 8, 1854, at Chatham, Ont., was educated at the Kent Grammar School and Osgoode Hall, and was called to the bar in 1879. In 1882 he began the practice of his profession in Westminster, B. C., and in 1892 was created Q.C. by the Earl of Derby. He was appointed judge of the Supreme Court in 1896.

McCREARY, JAMES BENNETT, formerly governor of Kentucky, and for many years one of the Democratic leaders in Congress, was, in 1902, elected to the United States Senate to succeed William J. Deboe. He was born in Madison County, Ky., July 8, 1838, his father being a member of an old Virginia family, and was educated at Centre College, Danville, Ky., where he graduated in 1857. Later he studied law at Cumberland University, graduating in 1859 at the head of his class, and began the practice of his profession at Richmond, Ky. He served in the Confederate army during the Civil War as major and lieutenant-colonel of a Kentucky cavalry regiment under Morgan and Breckinridge. After the war he resumed his law practice at Richmond, and in 1868 was elected a member of the Kentucky State assembly, serving from 1869 to 1873 and being speaker during the last two years. From 1875 to 1879 he was governor of Kentucky, restored harmony in the Democratic party in the State, and suppressed long-existing lawlessness in the mountain districts. He was elected to Congress in 1884 and continued a member until 1897, taking a prominent part in debates and legislation, and during the speakership of John G. Carlisle, being often called upon to preside over the House in the speaker's absence. In 1891 he was one of the American delegates to the International Monetary Conference at Brussels, Belgium, was a strong "sound-money" man, and retired from active participation in politics when the Bryan wing of the Democratic party obtained control of the organization.

MACEDONIA, a part of European Turkey lying between Bulgaria and the Ægean Sea and comprising the vilayet of Salonika and parts of the vilayets of Kossovo and Monastir. See TURKEY and BULGARIA.

MACKAY, JOHN WILLIAM, an American capitalist, died in London, July 20, 1902. He was born November 28, 1831, in Dublin, Ireland, and came to New York with his parents in 1840. The story of his rise from poor boy to "Bonanza King" belongs to the romantic traditions of the mining fields. He went West soon after the discovery of gold in California, and proceeded, in 1860, to Nevada, where he persevered through many vicissitudes, until, having formed a partnership with three companions, James C. Flood, William S. O'Brien, and James G. Fair, he acquired, in 1872, a two-fifths interest in some mining property that had been condemned by experts, and when on the very point himself of abandoning the claims, opened up the great bonanza in the Comstock Lode under what is now Virginia City. The discovery caused the fall in silver in the world's market which began in 1875. His good judgment showed itself clearly in the management of his vast property, and the good use to which he put an income amounting to about $800,000 a month. He helped to found the Bank of Nevada in 1878, became president of the Postal Telegraph Company in 1883, and in the following year established the Commercial Cable Company with James G. Bennett. A sharp fight with the Anglo-American Telegraph Company ensued, which resulted in a permanent reduction of the rate to twenty-five cents a word, and left the laurels with the new company. An attempt on Mackay's life, which caused a two months' sickness, was made by an insane stock speculator in 1893 in San Francisco. He was interested in art and gave a large sum of money for the erection of a statue of Joan of Arc in Nancy, France. He was also liberal to charities, and gave much money, especially to the Roman Catholic Church, of which he was a member.

McMILLAN, JAMES, United States Senator from Michigan, died at Manchester-by-the-Sea, Mass., August 10, 1902. He was born at Hamilton, Ontario, May 12, 1838, and after receiving a grammar-school training in his native city, removed to Detroit in 1855, where he began a business career that early proved successful. In 1864 he took part in organizing the Michigan Car Company, from which afterward sprang the Detroit Iron Furnace Company, the Detroit Car Wheel Company, and the Bangor Steam Forge Company, of all of which he was president. He also successfully organized the Duluth, South Shore and Atlantic Railway and many other corporations. Having become a leader in local affairs his entrance into politics was natural. In 1877 he was elected chairman of the Republican State Central Committee, in which office his masterful power of organization and control of men and affairs raised him to the position of a State leader and made him the logical successor to Senator T. W. Palmer in 1889. Re-elected in 1895 and 1901, each time as the unanimous choice of the Republicans in the legislature, he was a leader in the

Senate, as chairman of the Committee on Manufactures, and member of committees on naval affairs, agriculture, and the District of Columbia, his services on the naval committee being especially notable at the time of the Spanish-American war in 1898. His work in the Senate, in which he was consistently a protectionist and a believer in expansion, was of the "noiseless" variety, being performed in committee rather than on the floor. Among his many benefactions to Detroit may be mentioned the foundation of Grace Hospital, and gifts to the Museum of Art and the Young Men's Christian Association. To the University of Michigan he presented one of the most valuable Shakespeare libraries in the United States.

MADAGASCAR, an island in the Indian Ocean separated from the coast of Portuguese East Africa by the Mozambique Channel, is a French colony. The area of the island which, reckoning Australia as a continent, is the third largest in the world, is, with its adjacent islands about 227,750 square miles. No census of the population has ever been taken, and estimates have varied from 2,500,000 to 7,000,000, but that of the governor-general (1900), which placed the number at 3,500,000, is probably more nearly correct. The Hovas, a tribe allied to the Malays, constitute the most important element in the population, and number something over 1,000,000. There are other native tribes of considerable size, and the coast regions have a mixed population of Chinese, Malays, Hindus, and Mauritian creoles. The capital and largest city is Antananarivo, situated 80 miles inland from the eastern coast, with a population of 100,000. The chief ports are Tamatave on the eastern, and Majunga on the northwestern coast.

The Christian population was estimated in 1895 at 500,000, of whom 450,000 were converts of Protestant missions, but since that time the converts to Catholicism both from Protestant and heathen elements have been very many. The interior tribes are mostly heathen. A graded school system, including agricultural and industrial schools, and superior schools in which instruction is given in medicine and law, has been organized by the colonial government. The appointment in 1896 of General Gallieni, as governor-general, a post which he still holds, marks the actual foundation of the French colonial government, although the French claim to the island dates back to 1642. The greater part of the colony is still under military rule, but civil control is being substituted as rapidly as conditions allow. There is an administrative council at the capital, and civil administrators for nineteen organized provinces or districts. The military forces in the island consist of about 17,000 men, of whom one-half are native.

The colonial revenue, derived principally from direct taxes, customs, and the sale of government lands, amounted, in 1900-01, to 19,400,000 francs, and the expenditure, exclusive of the military expenditure, 17,100,000. The contribution of France amounted in 1902 to 31,340,003 francs, all but 700,000 francs of which was expended for military operations and expenses. The chief products are caoutchouc, raphia, rice, tobacco, hemp, coffee, manioc, tea, and arrowroot. Cattle-breeding and agriculture are the chief occupations of the people, but the agricultural methods are still very primitive. Nevertheless, many plantations founded by the French three years ago, are becoming productive, and the outlook is bright. There are valuable mineral deposits, still little developed. The gold production, derived largely by means of crude placer-mining, amounted in 1901 to £112,840, as against £120,346 in 1900. The commerce, largely with France, is steadily increasing. The imports in 1900 amounted to 39,895,897 francs, an increase from 27,916,614 in 1899. The exports, although still small, increased from 3,605,952 in 1896 to 10,623,810 in 1900.

A railroad 180 miles in length is being built by the government from Antananarivo to Tamatave, but construction is slow, and although in 1902 some 12,000 natives were employed upon it, their work is desultory, and in spite of the exertions of the governor-general, it is not likely to be completed for several years to come.

MADEIRA, a group of islands in the North Atlantic, 338 miles from the African coast, constitutes administratively an integral part of Portugal. The area is 505 square miles and the population, according to the provisional figures of the census of December 1, 1900, 150,528.

MAGNESITE. See MINERAL PRODUCTION.

MAGNETIC SURVEY. The United States Coast and Geodetic Survey formulated a plan in 1902 for the determination of the magnetic elements at more than 400 stations in Virginia, New Jersey, Pennsylvania, Ohio, Michigan, Kansas, Nebraska, Texas, Arkansas, and Florida. The investigations will not be completed before the middle of 1903. Plans were prepared for the erection of a magnetic observatory in Porto Rico and also in the extreme western part of the United States.

MAINE, a New England State, having a gross area of 33,040 square miles. The capital is Augusta. Maine was formerly under the government of Massachusetts, but was admitted to the Union as a separate State on March 15, 1820. The popula-

tion in 1900 was 694,466, while in June, 1902, as estimated by the government actuary, it was 701,000. The largest city is Portland, with a population in 1900 of 50,145.

Finance.—The report of the treasurer of the State of Maine for the calendar year 1902 showed that there was on hand on January 1, 1902, $297,837.17; the total receipts for the year were $2,414,385.82 and the expenditures $2,273,330.31, leaving a balance on December 31, 1902, of $438,892.68. The principal items of revenue were the State tax, amounting to $862,348.01; the tax on savings banks, amounting to $537,720.51; and the tax on railroads, netting $326,568.11. The total State debt at the end of the year amounted to $2,785,382.83; of this $1,983,000 was funded and $802,382.83 was unfunded. During the year the State debt was reduced by the amount of $70,000.

Industries.—The three principal crops of the State—hay, potatoes, and oats—were larger than usual in 1902. According to the Department of Agriculture, the crops were: Hay, 1,278,324 acres, yield, 1,367,807 tons, value, $13,732,782; potatoes, 80,627 acres, yield, 10,481,510 bushels, value, $6,812,982; oats, 116,461 acres, yield, 4,541,979 bushels, value, $2,043,891; buckwheat, 25,215 acres, yield, 766,536 bushels, value, $398,599. Corn was the only other crop of any importance, having a value of $225,824. The yield of buckwheat per acre was more than 20 per cent. greater than in any other State. Exports of grain at Portland increased considerably. Receipts of grain at that port in 1902 amounted to 12,151,840 bushels, of which 9,172,377 bushels were of Canadian origin.

The horses in the State January 1, 1903, were valued at $8,830,879; milch cows, $5,799,324; other cattle, $2,158,855; sheep, $1,158,793; and swine, $726,165. The wool clip in 1902 was reported as 1,559,818 pounds—a small increase over the 1901 clip.

The report of the State Forestry Commissioner showed that in the season of 1901-02 approximately 662,000,000 feet of spruce were cut. The commissioner estimated that the average annual growth of spruce in Maine is 630,000,000 feet.

The principal mineral product of the State is granite. The output in 1901 was greater than in any other State, and was valued at $2,703,116. A small increase was reported in 1902. Dressed stone rose in value from $887,786 in 1901, to $1,501,197 in 1902.

Railroads.—The total mileage of steam railroads in the State at the end of 1902 was 2000.57. The new lines constructed during the year amounted to 81.53 miles. Freight carried in 1902 amounted to 8,868,303 tons. The gross earnings for the year ending June 1, 1902, were: for steam railroads, $11,763,068.86; for street railways, $1,573,993.90. There were 342.68 miles of street-car line. The employees on all railways numbered 8479, and their total wages for the year were $4,458,383.20.

Conventions and Platforms.—The Republican State Convention, held at Portland, on June 11, 1902, indorsed President Roosevelt, expressed faith in the protective tariff and the gold standard, congratulated Cuba on independence, approved of the policy in the Philippines, and advocated liberal pensions for soldiers of the Spanish and Philippine wars. Other policies favored were: Government aid for the merchant marine; strong national and State legislation to protect labor and regulate monopolies; legislation to suppress anarchy and protect the person of the President; the continuance of State laws for the promotion of temperance, and the enactment by the next legislature of a direct primary law. The Republican administrations in State and nation were indorsed, and the action of the State's representatives in Congress were commended.

The Democratic State Convention was held at Bangor on June 17. The platform favored an immediate declaration of the intention of the United States to give to the Filipinos at an ealy date complete home rule and entire independence; the immediate abolition of all tariffs upon trust-made articles; free trade with the insular territories "which the Republican party is attempting to govern as colonial provinces"; the most stringent enforcement of all existing laws against trusts, railroad pools, and unlawful combinations; and the passage of new laws to supplement existing statutes of this nature. Demands were made for subjecting all legislative measures to the initiative and referendum; for the nomination and election of United States senators by direct vote of the people; for a gradual reduction of all tariffs; for public ownership of public utilities; for the repeal of the conspiracy law against labor; for the enforcement of the child-labor law, and for legislation looking to the shortening of the working day. The Maine prohibitory law was condemned, and the resubmission of the liquor question to the people demanded.

The Prohibition State Convention was held at Bath, on June 4. The platform charged the old parties with fostering the liquor trade and denounced the course of the national administration in permitting the extension of the traffic in the Philippines. It urged all citizens who in the past had "ineffectually petitioned the President" to join the Prohibition party in a practical protest at the polls.

Miscellaneous.—A movement was taken up during 1902 looking toward the conversion of the lake region of Maine into a great forest and game preserve. This region possesses some of the most beautiful scenery in the world, and the preservation of the native forests and the wild game is considered to be a matter of great importance. A fire broke out in Houlton, on May 17, consuming the greater part of the business section, the churches, and 75 residences, and rendering 125 families homeless. The loss was $400,000, only one-third of which was covered by insurance.

Elections.—At the regular biennial State election, held September 8, 1902, the full Republican State ticket was elected. The vote for governor was Hill (Rep.), 65,839; Gould (Dem.), 38,349. The Democrats were particularly aggressive during the campaign, not with any hope of securing the election of any State officers but with a desire to make a strong showing for the effect it would have in reducing the Republican majorities and in encouraging the Democrats of other States to make a hard fight. The State legislature for 1903 will consist of 30 Republicans and 1 Democrat in the senate, and 128 Republicans and 23 Democrats in the house.

State Officers.—For 1902 and 1903: Governor, John F. Hill, elected for two years, term ending January, 1905; secretary of state, Byron Boyd; treasurer, Oramandal Smith; attorney-general, George M. Seiders; superintendent of education, W. W. Stetson, term three years, beginning January, 1903; commissioner of insurance, S. W. Carr; land agent, E. E. Ring—all Republicans.

Supreme Judicial Court: Chief justice, Andrew P. Wiswell; associate justices, Lucilius A. Emery, William P. Whitehouse, Sewall C. Strout, Albert R. Savage, Frederick A. Powers, Henry C. Peabody, and Albert M. Spear—all Republicans.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

MALAY STATES, FEDERATED. See FEDERATED MALAY STATES.

MALTA, a Mediterranean island 58 miles south of Sicily, constitutes with Gozo, Comino, and several islets, a British crown colony, the total area being 117 square miles, with a resident population of 183,679 in 1901. The island of Malta has an area of 95 square miles, with 158,000 inhabitants. The capital is Valetta, a port of call and naval station, with about 50,000 inhabitants. The governor and commander of the troops in 1902 was Lord Francis Wallace Grenfell (since 1899). The revenue and expenditure in 1900 amounted to £356,758 and £365,943 respectively; in 1901, £385,698 and £394,508 respectively. Actual imports and exports in 1900 were valued at £1,026,829 and £48,508 respectively; in 1901 at £1,299,309 and £81,153 respectively. The goods in transit in 1900 were valued at £6,407,460 for imports and £6,422,765 for exports; in 1901, imports £8,615,945, and exports £8,601,973.

The decision of the imperial government that the use of English should become allowable in the Maltese courts on March 22, 1899, and that after fifteen years court proceedings should be conducted entirely in that language, continued in 1902 the subject of ill-tempered discussion. In January, 1902, Mr. Chamberlain, the colonial secretary, announced that, while the imperial government was determined to adhere to its decision to give Maltese parents the right to choose whether their children be taught English or Italian in addition to Maltese, it decided to withdraw the measure providing for the complete substitution in 1914 of English for Italian as the language of the courts. On February 8 this decision was formally proclaimed in Malta. It will be remembered that objections to the measure had been shown on the part of the colonial legislators by their refusal to enact bills necessary for the welfare of the colony, and so after this decision by the imperial authorities the governor of the colony warned the council that if such obstructionist tactics were continued the government would be compelled to modify the constitution. This announcement was irritating to the elected members of the council, who expressed their indignation by resigning; they were re-elected, however, and later in the year showed a more conciliatory attitude.

It seemed that the agitation against English was led by a small number of legislators who, to make themselves understood by the people, were compelled to speak Maltese. But apparently the people are not averse to the growth of English in the colony. Of Maltese parents, 94.4 per cent. in 1898 elected English for their children, 97.1 per cent. in 1899, and 98.5 per cent. in 1900; owing to the anti-English agitation the percentage then fell to 75, but it subsequently rose to 80. After the government's concession in 1902 the colonial secretary seemed determined to suffer no longer the "childish game" of the elected members. "The Duke of Wellington," said the London *Times*, "thought it as unreasonable to give a constitution to Malta as to give a constitution to a man-of-war. We have given her a constitution, but, if she persists in reducing it to a farce, the question will arise whether, in the interests of the empire as well as in the interests of the Maltese themselves, we should not revoke it."

MAMMALIA. See ZOOLOGICAL LITERATURE.

MANCHURIA, the northeasternmost portion of the Chinese empire, lying north of the Corean peninsula between Mongolia and the Russian maritime provinces of Siberia. According to official estimates the area of Manchuria is 942,000 square kilometres (363,700 square miles), and the population 8,500,000.

The Chinese-Russian Convention.—When, in 1901, Russia was compelled by the Powers to modify her plans for the occupation of Manchuria, Russo-Chinese negotiations were at once resumed on a new basis. The original agreement for Russian "evacuation" had provided for a withdrawal of Russian troops practically at Russia's pleasure, the convention containing the qualification that the country would be turned over to the Chinese authorities as fast "as the state of the country should permit." Since Russia was to be the judge as to the necessity of continuing the occupation, the acceptance of the convention would have resulted in the practical establishment of a Russian military protectorate in Manchuria. A new convention, however, was signed at Peking on April 8, 1902, by M. Paul Lessar, the Russian minister, and Prince Ching, of the Chinese foreign office, according to which Russia acknowledged Manchuria to be an integral part of the Chinese empire and agreed to restore to China absolutely both the administrative and judicial authority in the provinces. Furthermore, Russia agreed to evacuate the territory within eighteen months, instead of three years, as provided in the rejected convention of 1901, and nothing was said about "the state of the country permitting." The evacuation was to be made in three stages, as follows: (1) From the region between the Great Wall and the Liao River, Russia agreed to withdraw within six months from the signing of the convention; (2) from the Liao River, including Mukden and Kirin, within the second six months; and (3) from the Heh-lung-Kiang province within the third six months. Russia also agreed to evacuate Niuchwang as soon as the Powers should restore Tientsin to the Chinese, or in any event within the second six-month period. Pending the complete evacuation, China was given the "right" of determining with Russia what posts in Manchuria should be occupied by Chinese forces, and China agreed that, after the evacuation, the occupation of new posts by her troops would be undertaken only after consultation with the Russian authorities. Russia further undertook to restore the Shan-hai-kwan-Niuchwang Railway, provided that China would agree to guard and control it herself and not allow any other Power to undertake its defense, control, or extension. On October 8, 1902, in fulfillment of the agreement that portion of Manchuria south of the Liao River was "officially" turned over to the Chinese authorities. The London *Times* correspondent writing on October 20, declared, however, that the evacuation, while probably it literally fulfilled Russia's pledges, was actually not an evacuation at all, that the Russian troops had been merely moved to the Russian railway concessions along the line, and that the practical result was that Russia was more immovably installed in the province than before the occupation. The well-known and influential St. Petersburg paper, *Novoe Vremya,* frankly admits that Russia is in Manchuria to stay. Its Manchurian correspondent writes: "It is said that we are leaving Manchuria; but, as a matter of fact, those on the spot have a totally different impression, and it seems as though we had only just begun to settle down there in real earnest, and to take up the work with energy."

Dalny and Port Arthur.—In 1899 the Russians began to plan for the construction of a commercial port on the site of the Chinese town of Talien-wan, which lies on the southern extremity of Manchuria on the Corean Bay side. This place it was proposed to make, instead of Port Arthur, which is 45 miles south, the most important Russian base on the Pacific coast. The changed plans for the extension of the northern railway system will make it the most important Pacific terminus of the Chinese Eastern, the Manchurian and the Trans-Siberian railways. Its vast advantages over such places as Vladivostok lie in the fact that its fine deep harbor is open at all seasons, and that it is really in a latitude considerably south of Peking itself. In the spring of 1902 it was reported that 23,000 coolie laborers were busily engaged on the Russian works, that $20,000,000 had already been expended, that five large stone docks and two dry-docks had been constructed, that streets were being laid out both for the Chinese and foreign (or Russian) section and that the population of 50,000 was increasing daily. Many Russian and other European mercantile houses have determined to make Dalny, which is to be a free-trade port, the headquarters of their business. The city will be nominally governed by a council elected by the rate-payers. Two of the council must be Russian subjects and not more than two Chinese or Japanese. The original plan of making Port Arthur a strong military and naval base has, however, not been altered by the building up of Dalny, and in July it was reported that fully 30,000 coolie laborers were employed there in the construction of barracks, streets, sewers, and government storehouses.

Railways.—The railroads in Manchuria open for traffic in 1902 were the Manchurian section of the Trans-Siberian line, which runs from Syretensk (Siberia) on

the Amur River southwest, crossing the Manchurian border and continuing thence across Manchuria via Harbin to Vladivostok on the Pacific coast. From Harbin a line (the Chinese Eastern Railway) runs southward to Niuchwang 450 miles distant on the Gulf of Liao-tong and thence southward 150 miles to Dalny and Port Arthur. Niuchwang is connected with China proper by the Chinese Northern Railway (Shan-hai-kwan-Niuchwang line). At the close of the year it was announced in St. Petersburg that a new branch line of the Chinese railway would be constructed from Harbin to Kirin one of the most important trading centres of Manchuria and the junction of the principal trade routes of northern Manchuria, Corea, and the Amur region, with China.

Other Affairs.—On February 1, 1902, Secretary of State Hay addressed a note to both China and Russia admonishing them that the United States government looked with "the greatest concern" on any agreement whereby China should give Russia any trade monopoly in Manchuria, as constituting a breach of treaty rights.

In February the announcement was made that the Chinese and Russian governments were about to reach an agreement which would circumvent the Powers whose protest resulted, in 1901, in the abandonment of the original Chinese-Russian convention regarding Manchuria. This agreement, it was said, was to take the form of a powerful Russo-Chinese Bank, which should have powers so broad as to secure to Russia practically all that the convention was designed to secure. Immediately the United States, England, and Japan, who had been the first to protest against the convention of 1901, entered a protest at Peking against the chartering of a bank with such unusual powers and privileges. France, willing to give her ally a free hand, made no objection, nor did Germany, the inaction of the latter, it was thought, being influenced largely by the hope of obtaining similar rights in Shan-tung province. The protests of the three Powers, however, accomplished their purpose, and in March China informed their representatives at Peking that the Russian application for a bank in Manchuria had been withdrawn.

The plan of the Chinese government for the reorganization of the imperial administration in Manchuria was made public on June 30, 1902. It was drawn in conformity with the previously declared policy of the government to introduce a viceregal form of administration together with two or three distinct governors. It also provided for the introduction of Chinese officials in addition to the Manchus, who have hitherto had control of the administration in the province.

MANGANESE. See MINERAL PRODUCTION.

MANITOBA, a province of the Dominion of Canada, has an area of 73,956 square miles. The population, according to the census of 1901, was 246,464, as against 152,506 in 1891, an increase of nearly 62 per cent. The capital is Winnipeg, with a population of 42,336 in 1901, as against 16,697 in 1891. The public schools are free and undenominational, and at the close of 1901 numbered 1416, with an enrollment of 63,881. There are also over fifty schools for Indian children. Of higher educational institutions there are one university, four colleges, a normal school, and three collegiate institutes.

Government and Finance.—The province is administered by a lieutenant-governor aided by an executive council. There is one legislative chamber of 40 members elected on manhood suffrage. Manitoba is represented by 4 members in the Dominion Senate and 10 in the House of Commons. The ordinary revenue and expenditure for the calendar year 1901 were $1,008,653 ($905,331 in 1900), and $1,269,594 ($972,462 in 1900) respectively. The main items of revenue were the Dominion subsidy, $483,687; fees of the land titles office, $85,495; and municipal taxes, $43,900. Of the expenditure the main items were the interest on provincial debentures, $187,819; grant for public schools, $113,451; and special aid to municipalities, $78,552.

Industries, Commerce, etc.—The total area under crops in 1901 was 2,961,409 acres, and the total grain crop was 85,179,858 bushels, of which the chief items were wheat, 50,502.03 bushels; oats, 27,796,588 bushels; and barley, 6,536,155 bushels. Nearly 19,000 farm laborers were imported to help in harvesting the crop. The total dairy products were valued at $926,314. During 1901 the provincial lands department sold 161,786 acres, as against 52,641 acres in 1900, and 40 acres in 1895. The trade and commerce for the fiscal year 1902 were more than double those of 1901. The exports for the former year were $4,896,149, as compared with $1,084,992 for 1901, and the imports were $8,659,028, as compared with $5,396,189 in 1901. There were in the province at the end of 1900 46 chartered banks and branches and 37 post-office savings banks, with 2012 depositors, and deposits amounting to $949,991.

History.—The Manitoba legislature met at Winnipeg on January 9, 1902. The most important business before it was whether the prohibition act, which the Imperial Privy Council had affirmed to be constitutional, would be enforced. The provisions of the act were drastic, and Premier Roblin's government was disinclined to apply them without further consulting the popular vote. It was announced, therefore,

that a referendum would be taken, and that if 60 per cent. of those on the voter's lists voted, and if 60 per cent. of those voting were in favor of the act, it would be brought into force on June 1. The vote was taken on April 2, and the act was defeated by 22,464 to 15,607. This popular decision was regarded as reopening the whole prohibition question and impelling it into a new and acute phase, besides involving the existence of responsible government in the province. Prohibitionists, who had been successful in passing the measure in the legislature, became hostile to the government for its alleged shuffling and evasion in neglecting to enforce a constitutional act, and many of them refrained from voting when the referendum was taken. The political importance of the matter consisted in the tendency to neglect to enforce other subsequent acts by using the referendum as an excuse. A resolution was passed by the legislature in favor of extending the boundaries of the province so as to include a portion of the districts of Assiniboia and Saskatchewan and northward to Hudson's Bay. The motive of this resolution was the fear that the small area of the province as compared with the Northwest Territories would hamper its influence in the near future. During 1902, the colony formed in Manitoba three years previously for the fishermen who had been forced to leave the island of Anticosti, came to an end.

MANŒUVRES, MILITARY AND NAVAL. The year 1902 was productive of many important discoveries in the military and naval sciences, and witnessed the practical application of such important inventions as wireless telegraphy and submarine vessels. Besides this, there was the increased interest in tactics and strategy that invariably follows the close of a great war, which just as invariably works havoc with former theories and practices, and opens up still wider possibilities for the future. In brief, throughout the world, the military problems worked out in the various manœuvres, have largely been the testing of ideas and conclusions drawn from the Anglo-Boer war of 1899-1902. Below will be found described the more important naval, military, and combined service manœuvres of the world.

Austria-Hungary.—In the manœuvres held in the vicinity of Sasvar on September 12-16, 1902, in which upwards of 80,000 men were engaged, the participating troops were divided into two armies; one of which, the Western army, was supposed to be Prussian and was charged with the task of defeating or evading the Eastern or defending army. The Western army was under the command of the Archduke Franz Ferdinand, with the Archduke Otto, leading the cavalry; the Eastern army was under the Archduke Frederick, with Count Attiens as cavalry leader. The German crown prince witnessed the operations. The manœuvres as a whole, were of purely domestic importance and presented nothing original that was of interest to the world at large. Of more importance were the combined military and naval manœuvres in which the scheme was the attack and defense of Pola, the principal fortified point on the Austrian coast line. The plan of campaign included the use of torpedo boats for harbor and coast defense, and the blockade of a port. The troops cooperating with the navy (which was in three divisions), consisted of 4500 men, 110 horses, and 4 guns, carried by 4 transports belonging to the Austrian Lloyd. Trieste was the port of embarkation, and one registered ton was allowed for each man for a one-day cruise, two for a two or three days' cruise, and for each horse, six or seven tons. Slings were used for horses and guns, the entire embarkation occupying less than three hours. The scheme of debarkation was as follows: It began at 4 A.M. at three points, and in fifteen minutes 450 men and 6 field-pieces were on shore to cover the debarkation of the rest of the troops and stores. The fortifications were then attacked on the land side, the troops being supported by the ships. The result was in favor of the land defenses.

Bulgaria.—The strategic importance of Bulgaria in the Balkan Peninsula together with the important part her troops will have to play, should the long-threatened Eastern question develop into actual hostilities, made the Bulgarian manœuvres of more than ordinary interest. They were held from September 16 to 20, 1902, in the neighborhood of Shipka. The troops were divided into two armies, that of the North, representing the Russians in 1877, and the South army, that of the Turks. The army of the North under Major-General Durandareffski consisted of 20 battalions of infantry, 4 squadrons of cavalry, and 11 batteries of artillery. The Southern army, under Lieutenant-General Nikolajeff, was made up of 36 battalions of infantry, 16 batteries of artillery, and 12 squadrons of cavalry. The manœuvres were very satisfactory and demonstrated the efficiency of the army organization, mobilization, etc., and the very satisfactory training and equipment of the troops employed. The minister of war, Major-General Paprikoff, was in command of the entire force.

France.—The manœuvres of 1902 were not on so big a scale as is sometimes the case, but this did not interfere with the thoroughness of the operations and their importance to the French nation. The more important manœuvres were in the neighborhood of Toulouse, which city was defended by an army from the North

against an army coming from the southwest. General Brugère was in supreme command. Of especial interest were the operations of two armies equal in strength, who fought a battle on specially selected ground to the east of Troyes, between the Seine and the Aube. One army followed the Boer methods, while the other followed the regular French tactics. The troops representing the Boers were heavily engaged on their flanks, gradually enveloped and finally rushed after heavy-fire action. The victory rested with the attacking army, and the umpires decided that the so-called Boer tactics were practically useless. Capt. T. Bentley Mott, Artillery Corps, U. S. A., was present. The naval manœuvres were held during the month of July, and comprised four distinct periods of operation. The first was based upon the study of the strategic conditions of the western basin of the Mediterranean, which was continued in the succeeding period. The Mediterranean squadron represented the French naval forces, which had taken its post on the Algerian coast, the advanced and light squadron being at Mers-el-Kébir, while the northern squadron, representing the enemy, proceeded from Lisbon to the neighborhood of the Balearic Islands. In the opening phase, the operations comprised the observations of the approaches from Gibraltar, strategic scoutings, formations, tactical operations of contact, and the establishment of communication with Mers-el-Kébir by scouts and wireless telegraphy. In the second place, the French squadron, with a speed of 12 knots, was inferior to the enemy, who had a speed of 10 knots, and its object was to preserve contact until reinforcements could arrive from Algiers. Then followed a concentration of the fleet off Algiers, followed by some tactics and exercises in mooring at Bougie, Philippeville, Bizerta, and La Goulette. The third period of operations occupied the first week of August, and was in the nature of tactical and strategical exercises between the coasts of Tunis and France. The final period included a concentration of forces at the Iles d'Hyères, which consisted of combined exercises, evolutions, formations, exercises in coaling, victualing and watering the fleet. Considerable interest was manifested in the above manœuvres owing to the part which submarines played in harbor defense. Victory invariably rested with the submarines to the great satisfaction of the French naval authorities, who have made this branch of naval warfare an important part of national harbor defense.

Germany.—Manœuvres are common all over Germany, and are held annually in every station or garrison where the number of troops stationed will permit. The most important manœuvres, however, and the operations to which the military strategists of the world direct their attention are known as the Kaiser Manœuvres, owing to the fact that the kaiser is invariably present. The real problem to be worked out is rarely made public and is usually a secret of the greater general staff. Observers draw their own conclusions, aided by whatever information the German military authorities choose to give out. Ostensibly, the principal aim in 1902 was to test the organization and mobilization of the army, and discover, under campaign conditions, the value of such recent innovations as wireless telegraphy and the Boer field tactics. The operations, the field of which lay between Frankfort-on-the-Oder and Posen, covering a territory 30 miles wide and 50 miles long, were held from September 9 to 12 inclusive. Apparently, the invading army was approaching from Russia across the Vistula through Schleswig. The Red, or invading army, consisted of 26,000 infantry, 17,000 cavalry, and 4 regiments of field artillery. The Blue, or defending army, was made up of 20,000 infantry with 11,000 cavalry and 5 regiments of field artillery. The manœuvres ended with a spectacular attack on the invaders by the troops under the personal command of the emperor, which resulted in the complete defeat of the enemy. Generals Corbin, Young, and Wood, of the United States army, were present, and represented the United States. They were attached to the Red, or invading army. Considerable surprise was manifested throughout the military services of Europe and America at the apparent disregard of the German authorities of important lessons that the recent Boer war would seem to have taught. The Germans, however, do not concede that the Anglo-Boer war offered any decisive solution as to the principles and conduct of a war in which both combatants represent the highest development of training and equipment. On the other hand, several foreign expert observers of the 1902 manœuvres have recorded their opinion that many of the tactical formations of the Germans would be absolutely impossible under modern battle conditions. The perfection of their organization down to the smallest detail together with the thoroughness of their training and the proficiency of officers and men alike were universally conceded. Orders, reports, and messages of all kinds were transmitted by wireless telegraphy, the system employed being that of Braun, Siemens, and Halske. The wireless telegraphy detachments accompanying the cavalry division enabled the general commanding the forces to keep in constant touch with all his subordinate commanders, so that the army at large was constantly and quickly informed of the movements of the enemy, and the progress made by various bodies of their own troops, whereas had mounted orderlies

been employed for the same work, the information could have been neither so continuous nor so quickly transmitted. Especially valuable service was rendered by the so-called "mobile posts," which were attached to several of the units. Neither invaders nor defenders realized the expectations of such theorizers as M. Bloch. They rarely opened fire at over 1500 yards, and usually at from 1000 to 1200, or one-half the distance at which the Boers are said to have made good practice. German regulations specify 600 yards as the longest range at which it is useful to employ rifle fire. With regard to shelter, it was observed that one-half the men in the infantry division carried entrenching tools, which enabled them in a light and sandy soil to provide, in twenty-seven minutes, a complete shelter trench affording two feet of good cover with ample room for the men to lie down.

The naval manœuvres were held on September 15, 16, and 17, 1902, in the Unter Elbe. The enemy consisted of fifteen large vessels and a division of torpedo boats, to which were opposed six men-of-war, and a number of torpedo boats.

Great Britain.—Owing to the conditions which existed at the close of the Boer-British war, the usual Aldershot manœuvres were not held. The manœuvres of the British navy in the Mediterranean were held from the 15th to the 20th of September, 1902; 20 ships were engaged. They formulated nothing remarkable, and were largely held for the purpose of testing the efficiency and effectiveness of men and material. Wireless telegraphy was a prominent feature of the operations but was found, in its present stage of development, to be of little, if any, practical value for war purposes. Communication between ships of one squadron was completely disordered by the operators of the opposing squadron, who deliberately sent conflicting messages, the result being that the whole system broke down and was abandoned.

Japan.—The Japanese imperial manœuvres, in 1902, were held from November 10 to 13, concluding on the 14th with a general parade at Kunamoto on the island of Kiushiu. The troops were divided into two armies, north and south, the north defending itself at Kunamoto against the army of the south, which forced a landing at Yatsushiro. Major Wood, U. S. A., was present as the United States representative.

Russia.—The problem set for the grand manœuvres of the Russian army at Kursk was the capacity of the national railroads and transports to meet all the requirements of military mobilization and concentration. The embarkation of the Moscow army occurred between the 3d and 9th of September; that of the south army between the 2d and 8th of September. For the former, the Moscow-Kursk and the Smolensk-Orel railroads were used; and for the latter the Kiev-Kursk, Odessa-Kiev, and Kharkov-Kursk roads. From twenty to twenty-eight military trains were run every twenty-four hours on the Moscow road, and from eight to fourteen on the other. Possession was taken of the station at Kursk, and its resources strained to the utmost to meet the requirements of the concentration, 130 trains arriving there in four days. A noteworthy feature in connection with the test was that the regular passenger traffic was not in the least interfered with, a fact which has peculiar significance when it is recalled how inadequate the system was in 1877, at which time it broke down completely. About 90,000 men were engaged in the manœuvres which followed, but which, with the above exception, presented no new features of striking importance.

United States.—The year 1902 was fraught with importance to the army in the United States, marking as it did radical changes in organization, equipment, etc.; but its chief importance undoubtedly rested on the fact that for the first time in its history, manœuvres of great national importance were held. Those held at Fort Riley during the month of September were carried out by the first and second squadrons of the Fourth Cavalry, the first and third squadrons of the Eighth Cavalry, the Sixth, Seventh, Nineteenth, Twentieth, and Twenty-eighth batteries of field artillery, the Sixth, Eighteenth and Twenty-second regiments of infantry, the First and Second infantry (Kansas National Guard), the foot battery of Kansas artillery, the provisional infantry battalion, and a battalion of the Colorado National Guard. One battalion of national guard from Arkansas, and two from Nebraska were expected, but were prevented from participating in the operations, owing to the lack of appropriations for transportation, etc. A number of officers of the national guard from the various States were present as military observers. The regulars and militia were organized into a division of two brigades under the command of Major-Gen. John C. Bates, U. S. A. The first brigade, under the command of Brigadier-Gen. W. A. Kobbe, U. S. A., consisting of the regular infantry; the second, under the command of Brigadier-Gen. J. W. F. Hughes, Kansas National Guard, consisting of two regiments of Kansas troops. The Colorado battalion was brigaded with the regulars. The divisional cavalry, consisting of the first and second squadron Fourth Cavalry and the first and third squadrons Eighth Cavalry, was under the command of Col. C. C. C. Carr, Fourth Cavalry; and the divisional artillery, consisting of the Sixth, Seventh, Nineteenth, Twentieth, and Twenty-eighth

batteries field artillery, was under the command of Col. George B. Rodney, artillery corps. Altogether the forces assembled numbered about 6000 officers and men. The schedule of exercises was made up of regimental, brigade, and division drills; lectures on military operations, and field engineering; the construction of various shelter trenches, field bridge and pontoon bridge, and a course of eleven practical field problems in tactics. The programme was entirely carried out, except that the tactical problems were reduced from eleven to nine, owing to persistently bad weather. The force of umpires consisted of a chief umpire, with a senior umpire for each of the opposing forces, and ten umpires distributed in the exercises in accordance with the instructions of the chief umpire. The rules and directions covering the exercises were, in the main, those in use at the infantry and cavalry school and the cavalry and light artillery school, modified in some slight degree. Each evening preceding the exercises, the commanders detailed for the opposing forces received their instructions from the chief umpire. Each commander was given the special situation for his command, together with such information regarding the situation as a whole as he might reasonably be supposed to know by reconnaissance and from the course of the campaign in which he was supposed to be engaged. He did not, however, receive any information which would help him in any way or give him an insight into the plan of operations of his opponent. The conditions of actual warfare were maintained, and immediately on the conclusion of the exercises, the officers were assembled, and the report and comments of the chief umpire were read to them, after which there was a general discussion, and the officers who had been engaged in the exercises were given an opportunity for such explanation as they might deem necessary to correct any error in the reports, or to explain any errors of their own. Secretary of War Root referred to the Fort Riley manœuvres in his report as a good example of what can be done in the way of general manœuvres and exercises by regulars and militia to the great advantage of both in preparation for real military service. He stated that both the officers of the guard and the regular army officers received great benefit, and commented on the good understanding and friendly feeling established between the two classes of officers who were present at the manœuvres. Jealousy, superciliousness, and bad feeling between regular and volunteer officers had been, in the past, most prevailing causes of dissension, and he thought the best way to put an end to such a state of affairs was to bring the officers together, as in the Fort Riley operations. He expressed the hope that before another autumn the passage of the militia bill would enable the War Department to facilitate the attendance of greater numbers of the national guard troops for the repetition of these manœuvres on a larger scale.

The combined navy and army manœuvres were held during the month of September, and were designed primarily to test the thoroughness of the coast defences. The problem worked out was as follows: Anticipating the commencement of hostilities, the attacking Red fleet (without torpedo boats) determines to make a sudden dash upon Newport or the eastern entrance of Long Island Sound, and secure a naval base, taking advantage of the absence of a declaration of war to find the Blue land forces somewhat unprepared. The special problem for the coast artillery was to organize the districts of Narragansett and New London, and to be prepared to resist the attack of the fleet. All the forts in the artillery district of Narragansett, including Fort Adams, Fort Greble, Fort Wetherill and Fort Rodman, and of the artillery district of New London, including Fort Wright, Fort Michie, Fort Terry, Fort Mansfield, and the fort on Gardner's Point, were to be mobilized on a war basis, allowing two reliefs of artillerymen. It was assumed that no mines were in place before the period of preparation, August 29 and 30. The fleet attacks were to include one by day and one by night, and, if possible, a bombardment and forcing a passage. Building of defenses of any kind was not allowed, and torpedo boats were excluded from both sides. The Red fleet consisted of the battleships *Kearsarge, Alabama, Massachusetts, Indiana,* and *Puritan* (rated as a battleship for the purpose of the manœuvres), the armored cruiser *Brooklyn,* protected cruisers *Olympia* and *Panther* (the latter also specially rated), the unprotected cruisers *Montgomery, Mayflower,* and *Aileen,* the gunboats *Gloucester, Scorpion,* and *Peoria,* the tugs *Nina,* and *Leyden,* and the converted merchant steamer *Supply.* Such of the State troops as desired to take part in the manœuvres were assigned a position, and the naval militia distributed among the ships. The engineers laid the mines, installed searchlights, laid cables, telegraphs, telephones, and built the necessary houses for them. The ordnance department furnished ammunition and installed electric firing gear for the mortars and large harbor guns. The Signal Corps installed telephones, telautographs and other communications, laid and maintained the lines for improvised horizontal-system of range-finding, and had general charge of the service of scouting and information beyond the limits of the military reserve; such charge involving a wireless telegraphy station on patrol boats, as well as on shore, balloons, rockets, etc. In the operations the initiative was with the fleet,

and Rear Admiral Higginson in command divided his officers into two squadrons, the first of which was under his own personal command. Hostilities began at midnight, August 31, previous to which the fleet rendezvoused in Menemsha Bight, off Martha's Vineyard. On September 1 the fleet attacked Block Island in the early morning, landed troops, and captured the signal station at Beacon Hill. An incident of this capture, which proved unfortunate for the navy, was the failure of the latter to capture all the signallers of the station. Several escaped and continued to send information by means of small colored balloons, etc. The operations were then carried out to their conclusion according to the instructions. The strategy of the campaign as carried out by the navy was regarded as perfect. The coast defenses received great benefit from the manœuvres in that many important defects were discovered and afterwards remedied. These latter further labored under the disadvantage of having several forts (Michie, Mansfield, Wetherill, and Rodman) manned for the first time. The navy had the great advantage of knowing the exact location, character, weaknesses and strong points of the various forts. Contrary to the experience of the British, Admiral Higginson of the victorious squadron is reported to have regarded the absence of wireless telegraphic service on the ships of the United States navy as a serious drawback. He is quoted as follows: "Its value to me during the four days would have been incalculable. I could have spoken to my ships at sea, day or night, at any moment by wireless telegraphy, whereas, while all were in touch with me, they had been far beyond signalling distance, and, as it were, beyond my reach. While I have seen much during the last four days of value to me and to the navy, this one need of wireless telegraphy stood out so conspicuous in my mind as being the lesson of the last four days, that it is all-absorbing in its importance, to my mind."

The Caribbean manœuvres were held during the month of December, 1902. The search problem began on December 5, and the two commands of Rear-Admirals Higginson and Sumner were pitted against one another. The Bureau of Navigation preserved the same secrecy concerning the manœuvres as characterized it during the Spanish War. The official plan of the search problem was as follows:

"The White fleet to include vessels of commands of Rear-Admirals Sumner and Crowninshield, combined under the former; the Blue fleet to include vessels under Rear-Admiral Higginson.

"In the afternoon of December 5 the Blue fleet learned that one of its scouts sighted the White fleet December 2, in latitude 15 degrees North, longitude 45 degrees West, a position about 900 miles to the eastward of Barbados. This White fleet represents an advanced detachment of an enemy whose object is to secure a base in the Porto Rican waters between and including Mayaguez on the west, and Great Harbor, Culebra, on the east; also to mine the main ship channel of the port seized before 6 P. M., December 10, at which time the problem ends.

"(*a*) If it enters the port selected and has worked one hour in laying mines before the arrival of a Blue force 50 per cent. greater than its own, it wins. (*b*) If it enters the port and completes the mining of the channel before the arrival of a Blue force double its own, it wins. The White loses if intercepted by a superior Blue force at sea, or in less than one hour after it enters the port.

"The Blue force to win must: (*a*) With a superior force meet the White fleet at sea, or within one hour after it has anchored in the port selected. (*b*) If the White force has been at anchor more than one hour, but not long enough to plant all its mines, the Blue force must be 50 per cent. greater than the White." The Blue force won.

MANUFACTURES. During 1902 in the United States there was a continuation of the activity and prosperity of the previous year, and in the great majority of instances factories were working full time or overtime. There was an active demand for raw materials which, in some cases, notably that of iron and steel, could not be altogether supplied from domestic sources, or at least could not be furnished in sufficient quantities, on account of lack of railway facilities for moving freight. There was for the most part a keen demand for most manufactured articles at home, which caused manufacturers to pay little attention to the export trade. As a result, there was less talk heard in Europe of the "American Invasion," and, as will be seen from the table later in the article, a marked decrease in the exportations of certain lines of manufactures. Among government officials and others who have been working to extend the foreign trade, this was greatly deprecated, but it was said on the other hand that where foreign business had been firmly planted and the articles well known the trade continued active and showed no signs of diminution. It was on new lines, however, that there was a lack of initiative on the part of the Americans which enabled continental manufacturers to enter the field with more confidence.

The manufacture of machinery and other metal goods in its many forms was extremely active during 1902, and served in a measure to reflect the general pros-

perity. The demand was for the most part domestic, and, as we have said, this was due to the fact that manufacturers had as much as they could do to satisfy the home market without reaching out for export business. Generally speaking, wages and raw material were higher, but at the same time prices have been good and business active. Iron and steel are discussed at length elsewhere in this YEAR BOOK (see IRON AND STEEL), but mention may be made of manufactures into which they enter. Railway equipment was in active demand caused by the increase of track, rolling stock and other equipment by the leading railways as a result of several seasons of prosperous business. The dearth of freight cars caused activity among builders of such rolling stock, especially those making steel cars. Locomotive manufacturers also reported heavy business, and the Schenectady works of the American Locomotive Company underwent considerable extension. As a result of the growth in railway activity in the South it was determined to increase the capacity of the locomotive works at Richmond, Va. The Baldwin works at Philadelphia enjoyed a year of active business and turned out 1503 locomotives, of which 99 were for export. This is the greatest number ever constructed by this company in any one year, and improvements and extensions made during the year will increase this output by some 33 1-3 per cent. Electrical machinery was in active demand during the year, and the extension of trolley and other electric railways continues. Another side of the industry has been the demand for electrical machinery, due to the construction of so many large buildings all of which require electrical equipment of considerable extent. This large amount of building also had its effect on numerous other industries, and served in part to explain the volume of business.

In textile manufacturing the activity which characterized 1901 has continued, and many new mills are reported as in course of erection or as having been completed. From reports published in the *American Wool and Cotton Reporter*, statistics have been compiled which show the extent of the construction of new textile mills. The number for the year is given as 455 as compared with 469 in 1901. Of these 272 were in Northern States, and 183 in the South, as compared with 171 and 298, respectively in 1901. This shows that in spite of difficulties in financing schemes for industrial expansion, the progress of past years is being maintained and that the construction of cotton mills in the South (see COTTON) is being vigorously carried on. As regards the classes of goods made, the following division of these new mills may be made:

	1902	1901
Cotton	199	219
Woolen	68	81
Knit goods	103	110
Miscellaneous	85	54
Total	455	264

The year 1901 was abnormal as regards the number of woolen mills erected, so that there is nothing particularly significant in the decrease. The class termed miscellaneous includes a large number of silk mills, an industry which has flourished during the year. See SILK INDUSTRY.

Exports of manufactured articles were as follows in 1901 and 1902:

	1901	1902		1901	1902
Iron and steel	$102,534,575	$97,892,036	Musical instruments	$3,598,645	$3,437,337
Refined mineral oil	65,492,385	61,343,980	Gunpowder and other explosives	1,965,875	2,393,480
Copper manufactures	33,534,899	45,485,598	Paints and colors	2,051,036	2,219,438
Cotton goods	26,042,755	33,274,907	Glass and glassware	2,087,043	2,094,701
Leather and manufactures of	28,949,447	30,551,072	Brass and manufactures of	2,078,178	1,809,312
Agricultural implements	16,714,308	17,981,597	Wool manufactures	1,531,777	1,588,058
Chemicals, drugs, etc	14,267,110	13,437,367	Marble and stone manufactures	1,785,515	1,567,957
Wood manufactures	11,038,550	12,437,864	Jewelry	1,278,355	1,304,335
Carriages and cars	10,861,401	10,081,319	Lamps and chandeliers	968,131	956,655
Paraffine	7,959,907	8,398,450	Lead and manufactures	625,234	696,010
Paper and manufactures of	7,324,073	7,251,517	Plated ware	501,394	680,471
Scientific instruments	6,417,529	6,466,201	Varnish	602,033	624,597
Tobacco manufactures	5,377,189	5,523,234	Earthen and china ware	526,820	604,646
Fibre manufactures	4,418,406	5,111,865	Tin manufactures	495,435	529,061
Spirits, wines, and liquors	4,791,253	4,523,103	Starch	1,372,529	516,604
Books, maps, and engravings	3,623,069	4,407,026	Bricks	541,589	501,434
India rubber manufactures	3,326,016	3,815,754			

For descriptions of the year's progress in separate industries, see the articles, COTTON, IRON AND STEEL, RUBBER, SUGAR, SILK INDUSTRY, SHIPBUILDING, WOOL, etc.

MARCHETTI, Filippo, an Italian composer, died on January 18, 1902. He was born at Bolognola, February 26, 1835, was a pupil of Conti and Lillo at the Royal Conservatory of Naples in 1850-54, and won decided success with his first opera, *Gentile da Varano,* at its presentation in 1856 at the Teatro Nazionale of Turin. From 1860 to 1863 he was an instructor in vocal method at Rome, and subsequently at Milan, wrote his *Giulietta e Romeo* (with libretto by Marcello), which at La Scala, as well as also in Trieste, was produced with notable approval. This he followed by *Ruy-Blas,* which from its first rendition (at La Scala, 1869), met with a brilliant reception in Italy, but ten years later at Dresden attracted much less attention. From 1881 he was director of the Academia di Santa Cecilia in Rome. Other operas are, *Gustavo Wasa* (1875), and *Don Giovanni d'Austria* (1880), which, however, are much inferior to his earlier work. In addition to operatic compositions he wrote also choruses, symphonic works, songs, and sacred music.

MARCUS ISLAND, in latitude 24° 14′ N. and longitude 153° 4′ E., called forth in the summer of 1902 considerable discussion as to its ownership. In 1889 Captain Andrew A. Rosehill, an American, landed on the island, which was unclaimed and without inhabitants, and took possession in the name of the United States. He did not remain in effective possession, however, and did not comply with the law requiring the filing of a claim until 1902. Meanwhile Japanese had taken possession. In 1902 Rosehill purposed to make his claim to possession effective. But the Japanese, through their government, entered protest with the United States government. Rosehill was then on his way to the island, and when he reached there (July 30) he found a note from the United States government, brought thither by a Japanese warship, advising him to avoid a forcible demonstration in support of his claim. Rosehill thereupon went away and the dispute was left for diplomatic settlement. The island is said to be only a mile and a half long and two-thirds of a mile wide. It is of no importance except for guano deposits.

MARIANNE ISLANDS. See under Caroline Islands and Guam.

MARIE HENRIETTE, Queen of the Belgians, died at Spa on September 19, 1902. She was born in 1836, and was the daughter of Archduke Joseph of Austria. In 1853 she was married to Prince Leopold, who succeeded his father, Leopold I., as King of the Belgians in 1865. The union proved unfortunate, and the queen's married life was extremely unhappy. She was not only ill-suited in tastes and temperament to Leopold, but saw her hopes blighted in the death and misfortunes of her children. In 1867 the death in France of her only son, the Duke of Brabant, at the age of ten years, was believed by her to have been secretly instigated by French agents who wished, by that means, to hasten the absorption of Belgium by France. Her daughter, Princess Stephanie, married Archduke Rudolph, crown prince of Austria, and the unhappy married life of this princess soon became notorious throughout Europe, culminating in the tragedy of the archduke's death at Meyerling. A few years ago her nephew, Prince Baldwin of Flanders, died under circumstances which involved a scandal, and her eldest daughter is in an asylum. The queen was a woman of great spirit and resolution, meeting her troubles courageously, and devoting herself assiduously to works of charity. She was of unusual intelligence, was skilled in music and fond of outdoor life. Her daughter Stephanie returned to Belgium at the time of the funeral, but was refused permission to see her mother's body. For an account of this incident, see Belgium.

MARQUAND, Henry, an American capitalist, philanthropist, and art-patron, died in New York City on February 26, 1902. He was born in New York City, April 11, 1819, and after a course of education at Pittsfield, Mass., acquired interests in various enterprises, was connected with railway-construction in the southwest, and was chief promoter of the St. Louis and Iron Mountain Railroad, of which he was first vice-president, and later president until its incorporation with the Missouri Pacific. For ten years he was a banker in New York City, and, long an associate in numerous corporations, held office at his death as trustee of the Mercantile Trust Company, and a director of the Equitable Life Assurance Society. He became best known for his gifts and loans to the Metropolitan Museum of Art, New York City, of which he was for many years president, and whose growth was in important measure due to his wise liberality. The total value of his benefactions to the institution has been estimated at about $1,500,000. He contributed largely also to public and private charities, and to education. To Princeton University he donated the Marquand Chapel.

MARSH, Luther Rawson, an American lawyer and spiritualist, who died at Middletown, N. Y., on August 15, 1902; was born at Pompey, Onondaga County, N. Y. He studied law privately and in the office of Samuel Beardsley at Utica, N. Y., and after admission to the bar gained a high reputation for professional skill and eloquence. He was retained as counsel by the Erie Railway Company, and was the partner of Daniel Webster from 1844 until the

latter's return to the Senate. In the extension of the park area of New York City, and in the laying out and appraisal of land employed for park use, he was also prominent. He contributed numerous articles to magazines and editorials to the New York *Times*. In 1872 he became interested in spiritualism, originally by way of recreation but later with serious intent. His name was associated with those of Ann O'Delia Diss Debar (who was convicted of conspiracy against him) and the Huylers, mediums with whom he resided at Middletown, N. Y., a gentleman of the old school, reading in his great library, and receiving in séances a "new epistle of St. Paul" and other communications from the spirit world. He published an oration on *General Woodhull and His Monument* (1848), and edited *The Writings and Speeches of Alvan Stewart on Slavery* (1860).

MARTINIQUE, an island in the West Indies lying between the Windward and Leeward groups, is a French colony. Its area is 381 square miles, and its population (1901) 207,011. St. Pierre, population (previous to the disaster) 25,792, was the principal town; and Fort-de-France, population 17,274, is the seat of government. The colonial administration is in the hands of a governor and general council, and the colony is represented in the French parliament by a senator and two deputies. The local budget for 1900 balanced at 5,729,793 francs, and the subvention of France (budget of 1902) amounted to 3,135,516 francs. The debt amounted to 1,555,000 francs. The imports in 1901 were valued at 26,974,000 francs, and the exports, largely sugar, coffee, cacao, tobacco, rum, and cotton, reached a value of 23,827,000 francs. The trade has been almost entirely with France, although, before the eruption of Mont Pelée, that with the United States was growing.

Eruption of Mont Pelée.—The city of St. Pierre and neighboring hamlets were totally destroyed by an eruption of Mont Pelée on May 8, 1902. The outburst was closely related to that of La Soufrière in the island of St. Vincent, but it was much more destructive and some of its features were new to science. There were no outpourings of lava nor serious earthquakes—the usual manifestations of volcanic activity—but a hurricane blast of steam and incandescent ashes swept down the side of Pelée, uprooting, demolishing, and killing everything in its course. Within the space of a few minutes an area measuring 13 square miles was converted into a lifeless desert; only two of the 30,000 inhabitants escaped death in the furious storm which threw every building to the ground and left scarcely a semblance of tree or verdure in its wake. A thin mantle of ashes spread over the ruins and corpses alone indicated the volcanic nature of the catastrophe. This sudden outburst of Mont Pelée gave a new aspect to nature's dynamic processes; its result was one of the most tragic episodes recorded in the annals of history.

St. Pierre and Its Surroundings.—The islands comprising the chain in the Lesser Antilles, which stretches across the opening of the Caribbean Sea in a long loop from Porto Rico to Trinidad, off the coast of Venezuela, are composed mainly of volcanic materials accumulated during successive periods of eruptive activity. True volcanic cones occur at only a few localities, but lava and ash heaps are found almost everywhere beneath the covering of soil; while the presence of soufrières or solfataras shows that the dormant fires in the earth need only an outlet to burst forth with fierce energy. The whole Antillean chain lies along a line of crustal weakness, as is shown by the frequency of earthquakes. Serious volcanic disturbances, however, have been recorded only twice previous to the eruptions of 1902, and both occurred in St. Vincent. In 1812 Morne Garon exploded with fearful force, and nearly 100 years before (1718) there was also an eruption. It is noteworthy that the active periods have followed at nearly equal intervals of time.

Martinique, in the southern section of the Antillean chain, is dominated by two volcanoes, Pelée and Carbet, both lying in the northern part. Mont Pelée is located a little west of the northwest-southeast axis of the island. It is a massive mountain, rudely circular in form, tapering to a summit which has an elevation of some 4000 feet above sea-level. Its crest is bordered by steep cliffs inclosing a bowl-shaped basin or caldera—the summit crater—whose floor, lying 200 feet below the rim, was occupied previous to the eruption by a lake called Lac des Palmistes. The cone of Pelée is not constructional like that of Vesuvius, Etna, Mauna Loa, and other volcanoes erupting molten lava, but has been formed by explosive ejection of ashes, dust, and lapilli gathered from lava that has risen in the conduit and cooled there and from the walls. On all sides except toward the south, the cone falls to the sea, whose depth here is about 5000 feet; southward a long ridge or neck extends from Pelée to the slopes of Carbet. Besides the summit crater, which has a diameter of several hundred feet, the mountain bears sub-craters and one vent that played a prominent rôle in the recent eruption. This vent lies somewhat west of south of the summit crater at a lower elevation. Its position just previous to the outbreak was marked by a small lake, although, as indicated by the local name, Etang Sec, it had generally been dry. The Falaise crater on the east, and the Rivière Blanche crater on the southwest slopes of Pelée, are thought to be secondary centres of

eruption. Near the summit several rivers have their sources, flowing thence in diverging directions through deeply eroded gorges to the sea. The rivers taking a westerly course, including the Rivières des Peres, Rivière Blanche, and Rivière Précheur, carried the torrents of fluid mud that poured out of the craters during the period of activity. Almost due south from Pelée is the site of St. Pierre, occupying a low area sheltered by the mountain walls on the landward side and fronting to the west on the Caribbean. Along the same coast line, a few miles north and south of St. Pierre, are the sites of Précheur and Carbet.

Warnings of Eruption.—Since the establishment of the first European settlements in Martinique, the inhabitants had lived without fear of danger from Mont Pelée. Yet there was abundant evidence as to the volcanic nature of the mountain; the conical form, the craters, the presence of sulphur in the vent of La Soufrière, and the eruptive character of the surface rocks furnished ample proof that in past times outbreaks had occurred. A tradition also had been inherited from the native Caribs that Pelée was once active, and in recent times it had given evidence that its fires were still smoldering, ready to break forth at any moment. On May 10, 1851, violent earthquakes shook Martinique, and on August 5 of the same year rumblings were heard from Pelée. During the following night ashes fell in St. Pierre, Précheur, and Carbet, while the mountain streams for some time carried burdens of volcanic dust. The signs of activity soon ceased, however, and for fifty years the volcano slumbered.

Just when the first movements began which culminated in the eruption of May, 1902, is not definitely known. The view has been expressed that the great earthquake which shook Guatemala on April 18 and which was felt as far away as the Isle of Wight, may have acted as a proximate cause for the outburst. This opinion finds some support in the actual records of the occurrence. There is testimony that on April 23, four days after the earthquake, three heavy reports or detonations were heard in St. Pierre, in the direction of Pelée; they were accompanied by earth tremors—probably the first preliminaries of activity. On April 25 a great column of smoke rested over the mountain, and light explosions were heard. An observer who ascended the summit saw a dark, boiling mass in the crater, from which jets of steam and water spouted in the air. The further information has been recorded that on April 27 the basin or crater of Etang Sec (La Soufrière) was in eruption; a cone 30 feet high and 50 feet in diameter at the top had appeared, in the vent of which muddy water and a molten fluid could be seen. Steam and ashes were ejected from the new vent. According to evidence collected by Robert T. Hill, of the United States Geological Survey (*The National Geographic Magazine*, July, 1902), on April 29 rumblings were heard, white smoke rose from the summit, and some of the streams began to rise, burdened with volcanic ashes, débris and dead fish. Ashes fell for the first time in the streets of St. Pierre, and from this day there was an increasing shower of dust which became so heavy on May 2 that work was suspended in parts of the city. Another explorer ascended the mountain on May 3, and found that a new vent had been opened in the summit crater and was ejecting hot material into the Lac des Palmistes. A violent eruption, during which dense smoke and boiling mud were thrown out, occurred on this day; the Rivière Blanche became a raging torrent. At night the streets of St. Pierre were lighted by the brilliant flames which played over the volcano's summit. The following day the eruptive phenomena increased in intensity; for a time the sun's light was shut off by a cloud of ashes that fell on the city to the depth of an inch. On May 5 the terrible detonations were combined with lurid flames, lightning, and the fall of dust in such a display that human nerves could not long endure. The people of St. Pierre fled panic-stricken into the streets; some wandered aimlessly about, moaning and shouting; others found mental security in the churches. At noon a flood of liquid volcanic material rushed down the bed of the Rivière Blanche and completely engulfed the Guérin sugar factory, near the river's mouth, destroying 150 workmen. So rapidly came the deluge that it reached the sea in three minutes from its start on the mountain, five miles away. After the rush of the torrent, the sea receded 300 feet from the shore line and returned in a flood that inundated the lower streets of St. Pierre. The loud reports of the explosions in Pelée were heard in Guadeloupe on May 6, when the fall of ashes denuded trees of their foliage and limbs. Many of the inhabitants of St. Pierre on this day moved to neighboring hamlets without the limits of the volcano's activity, and a large number was taken on the government steamer to Fort de France. No doubt a general exodus would have occurred but for the action of the French governor, M. Mouttet, who encouraged the people to remain and sent a detachment of soldiers to prevent the departure of officials stationed in the city. The governor set out for St. Pierre to take personal charge in an attempt to restore order, but arrived only in time to perish with the rest. On May 7 telegraphic communication with the outer world was shut off by the breaking of the cables. One of the last messages to come from the doomed city was sent

MONT PELÉE IN ERUPTION

From a stereoscopic photograph. Copyright, 1902, by Underwood & Underwood

by the telegraph operator, and read: "Red hot stones falling here; don't know how long I can hold out." The end came the next day.

The Catastrophe.—The sequence of events on the morning of May 8, when the fearful blast swept away the city of St. Pierre, has been described by several witnesses who were within range of the volcanic forces. Naturally the stories differ in detail, as everybody was too much occupied in seeking refuge to calmly observe what was going on around him. At the time there was a number of vessels riding at anchor in the roadstead, but here the view was obscured by the dense smoke cloud. The record of the essential facts, in which there is general agreement, however, is as follows:

A great cloud of heavy black smoke rolled down the southwestern slopes of Pelée in the direction of St. Pierre. As it advanced with terrific speed along the ground, sheets of flame burst out and the cloud was observed by some to be brilliantly luminous. Along with the vaporous mass, which leveled trees and houses to the ground and left nothing living, came a torrent of red-hot ashes, setting fire to the whole city. The cloud swept rapidly on, but the annihilation was complete. The time of day was eight minutes before 8, as marked by the stopping of the clock at the Hôpital Militaire, or two minutes after 8 according to the record of the cable office at Fort de France.

The area of devastation included approximately the region between diverging lines that extend from the summit of Pelée to near Carbet on the south, and Précheur on the north. Within this area the vegetation was denuded or uprooted, thousands of homes were destroyed, and, according to the most reliable estimates, 30,000 people perished. Eighteen ships in the roadstead, with most of the officers and seamen, shared the general fate. Only two out of all those present in St. Pierre survived the catastrophe, and they were terribly injured by the steam and dust. As to the time consumed in the work of destruction, different opinions have been expressed. According to evidence of eye-witnesses, however, the people must have perished in the space of a few minutes, most of them probably within one minute after the passage of the cloud. Some were overwhelmed while pursuing the ordinary functions of life, showing that they had made no attempt to escape, while others fell in an effort to find refuge from the deadly vapors.

The forces which destroyed St. Pierre moved through the air, and were limited to the cloud-blast and the hot stones and ashes. No serious earthquakes occurred, as is evidenced by the undisturbed condition of houses and bridges within a short distance of the devastated region. The loud aerial detonations were followed naturally by air-blasts that shook the houses, and the explosions within the mountain caused earth tremors of sufficient force to rend the submarine cables entering St. Pierre. The solid ejecta of the volcano consisted of mud, dust, sand, and lapilli. The fact that there were no lava flows is to be ascribed to the refractory nature of the rock, which has the composition of andesite. As soon as the material passed into the upper part of the volcanic conduit away from the source of heat, it hardened and was thrown out in fragmentary form by the explosive energy behind it. The vesicular character of the rock indicates that it contained large quantities of gases or vapors whose explosion caused the loud detonations. No volcanic bombs were ejected such as are characteristic of volcanoes erupting molten lava. During the periods of greatest activity the rock fragments were thrown to a height of many thousand feet. The finer sand and dust were carried to a perpendicular distance of five or six miles and then distributed by the upper air currents over an immense area, while the large particles fell within short range of the volcano. The eruption was followed by brilliant after-glows, which were observed for several weeks in many parts of the United States and Europe.

Causes of Deaths.—The loss of life in St. Pierre was due to various causes. No doubt many succumbed to nervous shock, and many more were killed by the falling of houses, inhaling hot dust, and by fire. The blast of stones, which accompanied the fatal eruption and moved with velocity sufficient to riddle boiler iron, was also an important agency of destruction. But the chief cause of the loss of life was the moving cloud, whose character and composition have been differently interpreted by scientific authorities. The opinions so far expressed in regard to the devastating element in the cloud have been grouped by Prof. I. C. Russell (*The National Geographic Magazine,* December, 1902) in two classes: (1) Those favoring the idea that gases wrought the destruction; (2) those favoring the destructive agency of steam and hot dust.

(1) Several observers advanced the view that gases caused asphyxiation. Such gases might be carbon dioxide, sulphureted hydrogen, or a mixture of the two. There is much evidence that sulphurous odors were spread by the explosions preceding the fatal eruption and that they so strongly impregnated the air at times as to cause the death of animals. One of the craters of Pelée was known to contain sulphur, as is indicated by its name (La Soufrière). Moreover, silverware found

in the ruins was tarnished or blackened as if changed to a sulphide. This hypothesis, which assumes the presence of noxious gases in the cloud, may be supplemented by that of aerial explosions due to the ignition of inflammable gaseous materials. Prof. Angelo Heilprin, one of the first scientists to ascend Mont Pelée after the eruption, has expressed the view that an inflammable gas—probably belonging to the heavier carbon gases—issued from the crater, and was exploded by coming in contact with the air upon release from great pressure, or by lighting. From later observations, however, Professor Heilprin was led to reconsider this opinion (*Mont Pelée and the Tragedy of Martinique,* Philadelphia, 1902). There are some circumstances favoring the explosive theory, such as the flames involved in the cloud and the evidence that the forces acted laterally as well as longitudinally.

(2) There is not any doubt that steam was present in the ejecta of Mont Pelée, and the scientists who have visited the area of devastation in St. Vincent, where the conditions were analogous to those prevailing in Martinique, are almost unanimous in the opinion that a steam blast caused the devastation in that island. Strong support of the application of this hypothesis to Martinique is given in the testimony of the prisoner confined in a subterranean cell, who was one of the two survivors of the catastrophe. This man (a negro), when questioned as to his experience, stated that he smelled no odors of sulphur and had no feeling of suffocation from noxious gases. He heard no noise of explosions, but was burned by the hot vapors and dust that came through the door-grating of his cell. As has been remarked by Professor Russell, the prisoner was in a particularly dangerous position if heavy gases such as carbon dioxide and sulphureted hydrogen were carried in the cloud that swept over the city; for these gases, possessing greater density than air, would seek out just such subterranean chambers. The presence of steam in the blast is also inferred from the character of the burns that had been inflicted upon many of the bodies recovered in the ruins.

Movement of the Cloud.—There are several explanations for the direction taken by the blast of gases or vapors that swept over the city. The cloud no doubt was similar in composition to the vertical smoke columns that rose from the summit during the active periods, and differed from them only in its horizontal movement. This lateral sweep may have been due to the pressure developed at the base of the vertical columns by reason of the weight of the overlying mass and by the fall of rock fragments, both forces acting against the upward blast from the crater. The conditions necessary for the deflection of the blast from a vertical to a horizontal direction are a great height of column and the presence of a large proportion of solid material in the ejecta; both of these conditions apparently were present during the eruption of Mont Pelée. Another view has been advanced, based upon a somewhat different principle. It is believed that steam surcharged with débris behaves (in some ways) like a liquid and of its own weight might flow down a steep gradient and even acquire great velocity. The topographic features of Mont Pelée probably exerted a more or less direct influence upon the direction taken by the blast, as there was a deep cleft or notch in the southwestern portion of the crater's rim. This cleft, known as the *Fente* or *Terre Fendue,* forms the apex of the triangular area that was laid waste by the eruption.

Topographical Changes.—The work of devastation was entirely superficial; except for the covering of ashes and mud—a foot or more in depth—which changed the view of green fields and wooded mountain slopes to a sandy, lifeless, desert landscape, the physical features around St. Pierre are practically unaltered. The reports that the eruption was accompanied by subsidence of the sea bottom in the vicinity of St. Pierre cannot be confirmed, and it is quite certain that there were no such crustal movements. Aside from the minor erosive effects of the wave following the eruption, the shore-line conforms to its original contours.

Subsequent Eruptions.—After the eruption of May 8, the volcano continued to show signs of activity throughout the year, although for periods of several days it was apparently quiescent. A violent explosion occurred on May 20, and on August 30 there was a terrific outburst which destroyed Morne Rouge, Morne Balai, Morne Capot, and Ajoupa-Bouillon, and killed about 2000 people. It was characterized by steam blasts and violent detonations like the previous eruptions. For the eruption of La Soufrière, see ST. VINCENT.

MARYLAND, a Middle Atlantic State of the United States, has an area of 12,210 square miles. The capital is Annapolis. Maryland was one of the original thirteen States. The population in 1900 was 1,190,050, while in June, 1902, as estimated by the government actuary, it was 1,220,000. The populations of the two largest cities in 1900 were: Baltimore, the sixth largest city in the United States, 508,957; and Cumberland, 17,128.

Finance.—The funds in the treasury, September 30, 1901, amounted to $972,412.91. The total receipts during the year ending September 30, 1902, were $3,631,259.48, and the total disbursements $3,416,376.71, leaving in the treasury on September 30, 1902,

St. Pierre after the Eruption—Looking North to Mont Pelée

From a stereoscopic photograph. Copyright, 1902, by Underwood & Underwood

$1,187,295.68. Of the receipts $38,707.83 were derived from the franchise tax on savings bank deposits; $173,084.46 from insurance companies; $94,616.54 from incorporated institutions; $297,466.34 from the tax on the gross receipts of corporations. At the same time there were due from railroad companies $185,005.69. The funded debt at the end of the fiscal year amounted to $6,909,326.13; against this amount, however, the State held dividend-paying bonds and stocks aggregating $4,112,057, thus leaving a net debt of $2,797,269.13. By an act of 1902 a loan of $600,000 was authorized for purposes of public buildings. Of this amount, however, only $400,000 were issued during the year, and by the operation of the sinking fund the net debt was increased by only $134,924.84. A decision of the United States Supreme Court, held as applicable to the Northern Central Railway a State act of 1890, imposing an annual tax of 1 per cent. on the gross receipts of all railroads operating in the State by steam. The railroad had contended that, as by a prior act of 1880 "to adjust and settle finally by agreement all pending controversies between the State of Maryland and the Northern Central Railway Company," that railroad had been made liable to a tax of one-half of 1 per cent. on its gross receipts, the act of 1890 constituting a violation of contract. The court decided against this contention because the State constitution of 1850 expressly provides that all charters granted by the State may be altered or repealed. On December 11, 1902, the railroad therefore paid the accrued taxes from 1896 to 1902, inclusive, amounting to $225,017.92.

Agriculture.—Farming interests were fairly prosperous during 1902, the leading crops, as given in the *Crop Reporter*, being as follows: Corn, 628,982 acres, 20,379,017 bushels, value $10,393,299; winter wheat, 757,090 acres, 11,129,223 bushels, $8,013,041; oats, 42,132 acres, 1,124,924 bushels, value $427,471; potatoes, 28,801 acres, 2,304,080 bushels, value $1,198,122; hay, 298,142 acres, 301,123 tons, value $4,230,778; tobacco, 34,081 acres, 21,380,625 pounds, value $1,491,044.

Industries.—The Bureau of Industrial Statistics estimated that in 1901 30,000 people were employed in canning tomatoes, corn, peas, peaches, berries, pears, and pineapples, aggregating $15,000,000 in value. The men received about $1.50 per day. They worked at canning about 250 days during the year. In the oyster industry approximately 28,000 people were employed. About $6,000,000 was invested in the oyster packing industry. The catch in 1901 was estimated at 5,547,793 bushels and valued at $3,500,000. The bureau reports 16 strikes for 1901, involving 3420 employees. Four were successful and eleven entirely unsuccessful. The cost to the strikers is estimated at $100,715; the cost to the employers at $62,050.

Legislation.—Among the important acts passed by the legislature of Maryland during 1902 was one providing punishment for druggists and chemists who incorrectly compound prescriptions. In this law the question of intent is not considered. It was enacted in another measure that all carriers must issue on demand bills of lading to the consignor or order, and such instruments shall be negotiable in the same sense as bills of exchange and promissory notes. Regarding mortgages, a law was passed providing that a mortgagee must swear he has not required the mortgager to pay any tax on the interest covenanted to be paid, and that he will not require him to pay it. An act was also passed making valid all transactions by women as notaries public, and authorizing the appointment of women as such notaries. By another law provision was made for admission of women to the bar. Laws were passed to make education compulsory. Provision was made for the appointment of three members of the bar to revise the laws relating to corporations, to provide a general system for their formation, defining their duties, powers, and obligations, with details regulating the general method of conducting their operations, remedies for abuse, measure and increase of their powers, also method of dissolving them. Provision is made for the service of legal process on corporations, also for a complete system of incorporation law. The act is understood to include municipal corporations. A tuberculosis commission, with appropriate powers, was created during the session. In addition, a number of statutes were passed relating to sanitation, the protection of public health, and the regulation of the sale of poisons.

In Maryland, as in Louisiana, there was considerable agitation during 1902 regarding the introduction of a bill into the legislature to provide separate railroad accommodation for whites and blacks. A measure was offered by Mr. Campbell, chairman of the house committee on corporations, providing that conductors on railway trains should assign passengers to the seats and that any passenger refusing to accept the seat tendered should be guilty of a misdemeanor and punishable by a fine. This plan avoids the necessity of providing separate cars for negroes.

Elections.—The legislature on January 14, 1902, elected Arthur Pue Gorman (Dem.) United States senator, to succeed George L. Wellington (Rep.). Although chosen as a Republican, Mr. Wellington had become estranged from his party on the question of expansion and imperialism, and had voted with the Democrats. Mr. Gorman was returned to the Senate after an absence of six years.

State Officers.—For 1902 and 1903: Governor, J. W. Smith, elected for four years, term ending January, 1904; secretary of state, Wilfred Bateman; treasurer, Murray Vandiver; comptroller, J. W. Hering; attorney-general, Isidor Raynor; superintendent of education, M. Bates Stevens; commissioner of insurance, Lloyd Wilkinson; commissioner of public lands, E. Stanley Toadvin—all Democrats.

Court of Appeals for 1902 and 1903: Chief judge, James McSherry; associate judges, Henry Page, James A. Pearce, David Fowler, A. Hunter Boyd, I. Thomas Jones, John P. Briscoe, and Samuel D. Schmucker—all Democrats except Schmucker, Republican.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

MASCAGNI, PIETRO, an Italian composer, visited the United States in 1902 with his own orchestra and opera company, in the effort to produce his works where they would obtain the adequate presentation and impartial hearing denied them in Italy through the intrigues of rivals. During his American tour he presented his works at several of the larger cities, but was greatly hampered by mismanagement and by ignorance of American customs. Insufficient preparation forced him to rehearse constantly at the start of his tour, and to the frequent "strikes" of his foreign musicians was added the persecution of the musical unions. He also came into conflict with publishers having the American rights of his music, was several times arrested for alleged breach of contract with his managers, and was so terrified by his accumulating misfortunes that at one time he ventured to travel only attended by a police bodyguard. He was born in Leghorn, December 7, 1863, and though destined by his parents for the legal profession, studied privately until with the aid of an uncle he was enabled to follow openly his strong musical inclinations. A short period of study at the Milan Conservatory, and an unremunerative tour with an opera troupe were followed by several years of extreme poverty, during which he earned his livelihood by teaching the pianoforte and by chance opportunities to act as conductor. His *Cavaleria Rusticana* (1890), which was wonderfully successful when first presented, and which almost immediately gave its composer an international fame, was written for a competition instituted by Sonzogno, a prominent Italian publisher. Mascagni's other works, which include *L'Amico Fritz* (1891), *I Rantzau* (1892), *Guglielmo Ratcliff* (1895), *Silvano* (1895), *Zanetto* (1896), *Iris* (1898,) and *Le Maschere* (1900), have met with only moderate success. See MUSIC.

MASHONALAND. See RHODESIA.

MASSACHUSETTS, a New England State, has an area of 8,315 square miles. The capital is Boston. Massachusetts was one of the original thirteen States. The population in 1900 was 2,805,346, while in June, 1902, as estimated by the government actuary, it was 2,925,000. The populations of the five largest cities in 1900 were: Boston, the fifth largest city in the United States, 560,892; Worcester, 118,421; Fall River, 104,863; Lowell, 94,969; Cambridge, 91,886.

Finance.—The balance on hand in the treasury of Massachusetts at the beginning of the calendar year ending December 31, 1902, was $1,799,205.34. The total revenue receipts during the year were $20,197,159.87, and the total expenditures $20,641,195.38, leaving cash on hand, December 31, 1902, amounting to $1,355,169.83. The total funded debt of the State at the end of the year was $84,268,735.30. Of this amount the gross direct debt was $27,413,323.30, against which there was held a sinking fund of $13,940,695.21, leaving a net direct debt of $13,472,628.09. At the same time the gross contingent debt was $56,855,412. The sinking fund held against the contingent debt was $4,364,034.35, leaving a net contingent debt of $22,491,377.62. The payment of this contingent debt was guaranteed by a sinking fund created by a direct annual tax on the cities and towns directly benefited by the objects for which the debt was created. The amount of the increase of debt during the year was $6,572,100 on account of bonds issued for various purposes.

Agriculture and Industries.—The year 1902 was fairly favorable to agricultural interests in Massachusetts. Hay, the most important crop, was far above its average yield, and potatoes were more than usually productive. The leading crops, as given by the *Crop Reporter,* were: Hay, 582,948 acres, 932,717 tons, value $15,529,738; potatoes, 29,166 acres, 3,177,094 bushels, value $2,575,066; tobacco, 4755 acres, 7,417,800 pounds, value $1,112,670; corn, 46,670 acres, 1,460,771 bushels, value $1,080,971; oats, rye, and buckwheat together were valued at $172,218.

Statistics for January 1, 1903, showed 181,481 cows, valued at $7,077,759—more than all the horses, mules, sheep, and swine of the State were worth. There were 93,400 other cattle, valued at $1,526,566.

Massachusetts quarries produced in 1901 rough granite valued at $2,216,258. Maine alone exceeded that amount. In 1902 shipments of dressed granite exceeded those of 1901 by $155,070.

Of twenty-five new cotton mills built in the Northern States in 1902, ten were in Massachusetts, and the number of new looms and spindles set up in Massachusetts

surpassed the number set up in all the other Northern States combined. Of all the States, North and South, only South Carolina constructed a larger number of cotton mills during the year. It is notable that in 1901 only 10 per cent. of the new spindles put into operation were in the Northern States, while in 1902 43 per cent. were in the North. Eight new woolen mills were constructed in Massachusetts in 1902. Wool receipts at Boston in 1901 were 840,483 bales; in 1902, 1,013,738 bales. The greater part of the increase was from domestic shipments.

Railroads.—The total railway mileage in Massachusetts in 1902 was 9,233.25 miles. The gross earnings from operation were $86,920,565. The operating expenses were $61,355,821, leaving as net earnings from operation $25,564,744. The freight hauled amounted to 41,440,170 tons, bringing in an income of $44,618,645. The passenger business brought in $34,373,033. The freight rate per ton mile was 1.24 cents. The number of men employed in 1902 was 56,388.

Political.—The referendum as to district local option for the city of Boston was defeated by over ten thousand. The working of the new law for direct nominations for candidates for representatives was successful at the Republican caucus on September 24. The significant section of the law reads as follows: "Every nomination by a political party of a candidate for representative in the General Court, or any elective city office except a member of the school committee of Boston, to be voted for only in two or more wards of one city, shall be made in caucuses by direct plurality vote." Indorsement of the plan was received from many parts of the State, and no complaints were made regarding its operation.

Conventions and Platforms.—The Democratic State convention was held at Boston September 17, 1902. The platform in strong terms demanded the removal of duties on raw materials, particularly coal, iron ore, wool, and hides; urged reciprocity with Cuba and Canada; demanded "the repeal of all tariff duties on articles whose production is controlled by trusts;" and insisted upon independence for the Philippines.

The Republican State convention met at Boston on October 3, 1902. Its platform expressed confidence in the principles of protection as embodied in the Dingley tariff, and attributed to it the present prosperity of the country, but recommended changes in its schedule when justified by business conditions; approved President Roosevelt's plans for Cuban reciprocity; defended trusts as economic institutions, but recommended their regulation by law where they crush out lawful competition, interfere with individual liberty, or seek to corrupt legislation; commended the administration's Philippine policy; and favored the re-election of President Roosevelt in 1904.

The Prohibition State convention was held at Boston September 1, 1902. The platform advocated the merit system for public office, criticised the members of the Democratic and Republican parties in Congress for neglecting to check "the inhuman treatment practiced by our army in the Philippines," also "for consenting to the legalizing and regulation of vice, demoralizing and debauching in effect the army in the Philippines, and elsewhere." It also declared that neither of the great parties cared to use influence in the direction of keeping down the increasing power of the brewing interests, the distilling interests, and those of saloonkeepers. It charged the two great parties with connivance in the "fearful havoc that the liquor traffic is making."

The Socialist platform charged that the capitalist class has a firm grip on the government, using its great power toward its own end, even going so far as to secure the aid of the courts and military in resisting any attempt of working men to ameliorate their condition. Working citizens were urged to unite politically and get control of the government, converting privately owned capital into collectively owned capital, managed by direct legislative methods. The platform declared, also, that, while both parties profess friendship for labor, they are really working hand in hand with capital. The Socialists advocated the initiative and referendum, the public ownership of public utilities, and the election of United States senators by the people.

Labor Movements.—The mill owners of Fall River, on February 26, agreed to advance the wages of the operatives, beginning April 7. The unions voted to ask for 10 per cent. On February 27 the Textile Council voted to ask for the same increase. On March 8 the Manufacturers' Association voted to give a little more than 6 per cent., but on the 15th consented to give the increase demanded, and thus prevented a strike. The freight handlers of the railroad and steamship companies in Boston struck in March. Within a few days, a sympathetic strike of the teamsters took place. The demand of the freight handlers was for a recognition of the union. The teamsters had a grievance in the discharge of seven union teamsters, who declined to participate in the loading of goods handled by non-union freight handlers. Transportation business practically ceased for a week, except for the transaction of express company business, but finally each side yielded certain points and an adjustment was reached.

Primaries and Elections.—At the regular annual election, held November 4, 1902, a full Republican State ticket was elected. The vote for governor was Bates (Rep.), 196,276, and Gaston (Dem.), 159,155, giving the Republican candidate a plurality of 37,120. The chief issue of the campaign was the trusts. Both party platforms demanded regulation of the trusts, though the Democratic platform was the more radical. The Republican candidate was a strong anti-trust man, while the Democratic candidate was known as a defender of trusts. The surprise of the election was the small vote given in Boston to the Democratic candidate, his adherents expecting him to receive a majority of not less than 20,000, but he actually succeeded in getting only about 12,000 plurality over the Republican candidate. The State legislature for 1903 will consist of 30 Republicans and 9 Democrats in the senate, and 146 Republicans, 68 Democrats, 4 Independents, and 3 Socialists in the house.

State Officers.—For 1902: Governor, W. Murray Crane; lieutenant-governor, John L. Bates; secretary of the commonwealth, William M. Olin; treasurer, E. S. Bradford; auditor, Henry E. Turner; attorney-general, Herbert Parker; secretary of the board of education, Frank A. Hill; secretary of the board of agriculture, James W. Stockwell; commissioner of insurance, F. L. Cutting—all Republicans. For 1903: Governor, John L. Bates, elected for one year, term ending January, 1904; lieutenant-governor, Curtis Guild, Jr.; secretary of the commonwealth, W. M. Olin; treasurer, E. S. Bradford; auditor, Henry E. Turner; attorney-general, Herbert Parker; secretary of the board of education, Frank A. Hill; secretary of the board of agriculture, James W. Stockwell; commissioner of insurance, Fred. L. Cutting—all Republicans.

Supreme Judicial Court for 1902 and 1903: Chief justice until November, 1902, when he was appointed associate justice of the United States Supreme Court, Oliver Wendell Holmes; appointed as his successor, Marcus P. Knowlton; associate justices, Marcus P. Knowlton (until November, 1902), Henry K. Braley (after December, 1902), James M. Morton, John Lathrop, James M. Barker, John W. Hammond, and William C. Loring—all Republicans.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

MATABELELAND. See RHODESIA.

MAURER, KONRAD VON, a German archæologist and authority on jurisprudence, died September 18, 1902. He was born April 29, 1823, at Frankenthal, Bavaria, studied at Munich, Leipzig, and Berlin, and in 1847 was appointed professor of jurisprudence at Heidelberg. He made a special study of the Icelandic language and literature, and was one of the foremost authorities on the early history and laws of the Teutonic and Scandinavian peoples. In connection with these subjects, he published: *Die Entstehung des isländischen Staates und seiner Verfassung* (1852), *Die Bekehrung des norwegischen Stammes zum christentum* (2 vols., 1855-6), *Island von seiner ersten Entdeckung bis zum Untergang des Freistaates* (1874), *Zur politischen Geschichte Islands* (1880). He edited *Gull-Thóris-Saga* (1858), and a collection of legends entitled *Isländische Volkssagen den Gegenwart* (1860).

MAURITIUS, an island in the Indian Ocean 500 miles east of Madagascar, is a British crown colony. It has an area of 705 square miles, and a population (1901) of 370,407, the great part of whom are of East Indian birth or descent. The white inhabitants are largely French Creoles. Rodrigues, Diego Garcia, and other small island dependencies have an additional population of about 4000. The capital, Port Louis had a population in 1900 of 53,978. The government, which is more representative than that of the ordinary crown colony, is administered by a governor (Sir Charles Bruce since 1897), assisted by executive and legislative councils, both consisting partly of elected members. There is a thoroughly organized educational system, under the colonial department of instruction, and consisting of primary and grant-in-aid schools, and secondary or superior schools, at the head of which stands the Royal College. The Indian population is largely Hindu or Mohammedan in its religious faith, the European element Roman Catholic. The financial condition of the colony is better than it has ever been, and is improving annually. The latest accessible figures for revenue and expenditure were for 1900, and showed Rs. 9,179,975 and Rs. 8,568,944, respectively. The debt in 1901 was £1,186,684, and there is a local paper money circulation of Rs. 4,636,250. Both imports and exports showed a decrease in 1901 from the values in 1900, the former falling from Rs. 23,052,975 to Rs. 20,400,239, and the latter from Rs. 31,575,276 to Rs. 28,993,067. Nevertheless the trade, which is chiefly with India, Australia and South Africa, is in a prosperous condition. The export of the principal product, unrefined sugar, reached a total value of Rs. 28,836,354. Most of the island being given up to sugar cultivation, the necessities of life have to be very largely imported. There are two railway lines of a total length of 105 miles in operation.

MEDICAL INSPECTION OF SCHOOLS. See EDUCATION IN THE UNITED STATES.

MEDICAL PROGRESS in 1902. One of the most interesting achievements during the year was the discovery by Duval and Bassett, of Johns Hopkins University, of the bacillus causative of infants' summer diarrhœa (see BACTERIA). Akin to the study of bacteria is the study of the toxins they create and of the means of neutralization by the administration of antitoxin, or by exciting the production of antitoxin by repeated inoculations with attenuated toxins. Researches in this line have been prosecuted vigorously during 1902. (See ANTITOXIN; CANCROIN; SERUM THERAPY; TUBERCULOSIS.) A few new or newly approved drugs have enriched the materia medica of the clinician. (See ATOXYL; ANÆSTHESIN; CEREBRINE; NERVOCIDINE; STYPTICIN.) Further successes are reported from the use of the actinic rays and of the X-rays, as well as from the use of cold as a therapeutic agent. (See FRIGOTHERAPY; PHOTOTHERAPY; RONTGEN RAYS IN MEDICINE.) The crusade against phthisis, which causes a larger proportion of deaths than any other disease excepting infantile disorders, has been continued energetically, but apparently with less satisfactory immediate results. (See TUBERCULOSIS.) An interesting and rather alarming fact has been brought to light in the Philippines, where *surra*, the parasitic disease infesting horses in India, has been discovered. The rôle played by insects in the propagation of disease is still under discussion, and increased testimony is offered in support of large claims. (See INSECTS AND THE PROPAGATION OF DISEASES.) Probably the most popular medical topic of the year was the very enthusiastic reception of Professor Adolf Lorenz, of Vienna, in the United States, and his less welcome visits in London and continental cities. (See LORENZ, ADOLF.) Other medical news and facts will be found under their proper captions.

MENNONITES, a sect of Christians who established their first church in America at Germantown, Pa., in 1683. The denomination includes 12 bodies, the largest of which are the Mennonite with 22,743 members, the Amish with 13,226 members, and the General Conference with 10,395 members. Including the other divisions: Bruderhoef, Old Amish, Apostolic, Reformed, Church of God in Christ, Old (Wisler) Bundes Conference, Defenseless, and Brethren of Christ, the denomination as a whole has 673 churches and 1112 ministers with 59,274 communicants. Under the auspices of the church are educational institutions at Elkhart, Ind., having 150 students; at Newton, Kan., with 125 students; and at Bluffton, O., with 50 students. Its periodical literature, in both English and German, is extensive; the *Herald of Truth,* published semi-monthly at Elkhart, Ind., is a representative paper.

MERCURY. The production of mercury in the United States in 1901 was 29,727 flasks of 76.5 pounds, valued at $1,382,305, as compared with 28,317 flasks, valued at $1,302,586 in 1900. The exports for the same years were 11,219 flasks ($475,609) and 10,172 flasks ($425,812), respectively, practically the entire shipments going to Mexico and Central America. According to an estimate of *The Engineering and Mining Journal* the output in 1902 was 32,000 flasks, of which 4500 flasks came from the Texan mines and the remainder from California. New discoveries were reported in the latter State, resulting in the opening of two mines on a producing scale. The operations in the recently opened district at Terlingna, Tex., were greatly hampered by the lack of transportation facilities and by the adverse conditions of water and fuel; yet the production increased 50 per cent. during the year. The University of Texas issued a comprehensive report (*Bulletin of the University of Texas, No. 15*) upon the geology and present economic conditions of this district, from which it would appear that an increased development may be expected in the near future. There is a large area favorable for the occurrence of cinnabar, and the workings have, so far, been confined to the surface. As the deposits were formed apparently in the same way as those in California, there is reason for supposing that they will prove productive in depth. Among foreign countries, Spain was the only one to report a large increase in production in 1902. The world's output of mercury has fallen off in recent years, and unless some new fields are developed there is a prospect of further diminution in the supplies.

MEREJKOWSKI, DMITRI, the Russian writer whose *Tolstoy as Man and Artist,* published in 1902, provoked much discussion in literary circles because of its unusual assertions in disparagement of Count Tolstoy's character and achievements, was born in 1865 and was educated at the University of St. Petersburg. Since the publication of his first poems in 1886 he has been prominent among the younger set of Russian writers, and is considered by some, though to the greatest extent by his translator, as the one upon whom the "mantle of Tolstoy" is soon to fall. An historical novel at first announced as *The Resurrection of the Gods,* but published in the United States as *The Romance of Leonardo da Vinci, the Forerunner,* also appeared during the year, the second of a trilogy having as a general

title *Christ and the Anti-Christ*. The first of the series, which will end with *The Anti-Christ*, has already been published as *The Death of the Gods*, dealing with the life and times of Julian the Apostate.

MERIT, ORDER OF, was instituted in June, 1902, by King Edward VII. Membership is conferred on persons who have gained prominence and distinction in their professions and is not conferred for political services. The order has precedence immediately after the Order of the Bath and before the other orders of knighthood. The order has been conferred so far on 12 persons, viz.: Lords Roberts, Wolseley, Kitchener, Rayleigh, Kelvin, and Lister, Admirals Keppel and Seymour, Sir William Higgins, and Messrs. John Morley, Lecky, and G. F. Watts.

MESDAG, Henry William, an artist of the Dutch school, died August 4, 1902, at Amsterdam. He was considered an equal of the Israels in reproducing hazy atmospheric effects, and one of the first marine painters of the world. He was born in 1831 in Gröningen, Netherlands. It was not until late in life that he became an artist, but he gained an almost immediate success, and won medals in Paris in 1870 and 1878. His pictures convey the unusual impression that they were painted from the sea itself rather than from the shore. He was particularly felicitous in depicting the sea in its stormy moods. Some of his best known works are "A Fleet of Fishing Boats at Schveningen," "The Scheldt—Morning," "Sunrise on the Dutch Coast," "Looking for Anchors After Storm—North Sea," and "In Danger." His studio was the largest and most magnificent in Holland.

METEOROLOGY. The results of recent investigations on the temperatures prevailing in the higher regions of the atmosphere were made public at the International Aeronautical Conference held at Berlin in May, 1902. These investigations have been carried on since May, 1900, by means of balloons equipped with self-registering instruments and released simultaneously at Paris, Strassburg, Berlin, Munich, Vienna, St. Petersburg, and Moscow. From the numerous data collected it has been found that the temperature does not decrease steadily upward from the earth's surface, as has been commonly supposed. The observations made at Paris during 258 ascensions show that the decrease becomes very small at an altitude of from 8000 to 9000 metres and ceases entirely at 11,000 metres, while above this altitude a warming may set in. The lowest temperature recorded was −75° C. The range of temperature is as great at 10,000 metres as at 4000 metres, although it has generally been assumed that a nearly constant temperature prevailed at no great distance from the earth.

On January 1, 1902, a new system for the reduction of barometric pressures to the sea level plane was inaugurated by the United States Weather Bureau. This system involves the determination of a standard elevation for each observing station in the United States, West Indies, and Canada, and the calculation of tables for reducing the station pressures to the normal plane. It is proposed to adopt other planes of reference in the near future in the hope of securing more reliable data as to seasonal variations in temperature, changes of climate from year to year, and the radiation effects of the sun upon the earth's atmosphere. An investigation of the phenomena of atmospheric electricity and terrestrial magnetism has been undertaken with the support of the Norwegian government; observations are to be made from August 1, 1902, to June 30, 1903, at four stations located at Bossekop, and in Iceland, Spitzbergen, and Novaya Zemlya. One of the principal objects of the investigation is to obtain data as to the direction, altitude, and intensity of atmospheric electric currents.

METEORS. See Astronomical Progress (paragraph Meteorites).

METHODIST CHURCH, CONGREGATIONAL. See Congregational Methodist Church.

METHODIST CHURCH, FREE. See Free Methodist Church.

METHODIST CHURCH, PRIMITIVE. See Primitive Methodist Church of America.

METHODIST EPISCOPAL CHURCH was formally organized, as a denomination of the United States in 1784 when the first general conference met in Baltimore. An annual conference had been held in 1773, seven years after the origin of the earliest regular church. The Methodist Episcopal Church is now the largest Protestant body in the United States, its constituency being exceeded only by that of the Roman Catholic Church. There are 155 organizations in the "plan of Episcopal visitation": conferences 129, two of which were established in 1902, mission conferences 11, and missions 15. The increase in the number of communicants during the past year was nearly 50,000, making the present membership 2,997,772, with 27,875 churches and 17,922 ministers. The value of church property, exclusive of parsonages which represent a total of $20,519,559, amounts to $126,085,111. The Sunday schools number 32,669 and have 351,402 officers and

teachers, and 2,758,429 scholars. Contributions for the official benevolences aggregated $2,679,132, a gain of $307,501 over last year. The Episcopal board now comprises 21 members, the Rev. William Taylor, D. D. (*q.v.*), missionary bishop for Africa, having died May 18, 1902. The educational institutions under the auspices of the Methodist Episcopal Church number 164, including 22 theological seminaries with 973 students, and 51 colleges and universities with 29,007 students. They hold property and endowment, in excess of debt, equal to $35,671,037, and have 3271 professors and teachers, and 50,295 students. The American University, a post graduate institution at Washington, D. C., received numerous gifts during the year. One bequest possibly will realize some $200,000. On May 14, the corner-stone of the McKinley Memorial Ohio College of Government was laid by President Roosevelt, this being the second of the 23 buildings contemplated, the College of History having been already completed at a cost of $176,000. Ten million dollars is the sum named for buildings and endowment of the university. The report of the treasurer of the general missionary society shows total receipts for the year 1902 amounting to $1,462,924. There are missions in the United States, and the foreign fields, in Protestant lands, are Norway, Sweden, Denmark, Finland, Germany, and Switzerland; in Roman Catholic lands, South America, Italy, and Mexico; in Greek church lands, Bulgaria and Russia (St. Petersburg); in non-Christian lands, Africa, China, Japan, Corea, India, and Malaysia. The establishment of a mission in Porto Rico and the organization of the West Central Africa Mission Conference, that for East Central Africa having been formed late in 1901, were among the events of 1902. Particular progress in the Philippines, China, India, and Japan was reported; and the work in Italy was conducted with such activity as to call forth open letters from the Pope.

The creation of a joint missionary publishing house in Shanghai, China, by the Methodist Episcopal Church and the Methodist Episcopal Church, South, was important because of its promise of increased administrative efficiency. It also marked a distinct advance toward affiliation of the two great Methodist bodies. This act was the result of a meeting of the joint commission on federation, held in Baltimore (see below) at which other considerations for missionary cooperation were adopted. Permanent organization of a joint board of directors for the new concern was effected in September. The first general missionary conference in the history of the Methodist Episcopal Church took place in Cleveland, October 21-24. It was called owing to impending financial difficulties, as the missionary activities of the denomination have expanded to such an extent that the ordinary income of the general society no longer suffices to meet the demands made upon it. More than $300,000 was subscribed by the delegates, who issued an appeal to the church to increase the amount to at least $500,000 before the meeting of the general missionary committee.

One of the noteworthy events of 1902 was the completion of the twentieth century thank offering, a movement instituted in 1898 in the interests of special objects of the church, for foundation and permanent endowment, and not for current support. Late in the year it was reported that the entire amount of $20,000,000 had been raised in money and pledges. On March 27 the joint commission on federation between the Methodist Episcopal Church and the Methodist Episcopal Church, South, met in Baltimore. Two committees, on a common hymnal and on a common catechism and order of worship, were provided for and later were appointed by the bishops of the two churches, such action on the part of the Episcopal board of the Southern Church having been authorized at the session of the general conference of that church in Dallas, Tex. The provisions of the commission in regard to missionary activities have been noted above. Formal proclamation of the adoption of the new constitution, which received, in 1901, the necessary three-fourths approved by the annual conferences, was made at the semi-annual meeting of the board of bishops in Chattanooga. At this session also was appointed, in accordance with the resolution of the general conference of 1900, a committee on the consolidation of the benevolent societies of the church.

Higher criticism was, in 1902, the source of controversy in the Methodist Episcopal Church. The views of several well-known professors in Northwestern University were severely criticised, in particular the so-called heresy of Charles W. Pearson, professor of English literature, attracting much attention. Professor Pearson's chief "heresy" consisted in characterizing Biblical infallibility as "superstitious and hurtful tradition," and the miracles of both Old and New Testaments as "mere poetic fancies, incredible and untrue." He issued also an outspoken arraignment of the policy of the church. The case was terminated by Professor Pearson's resignation. *The Carpenter Prophet: A Life of Jesus Christ and a Discussion of His Ideals*, published later, further explains his doctrinal views.

METHODIST EPISCOPAL CHURCH, SOUTH, was organized in 1845, in Louisville, Ky., by annual conferences of the Methodist Episcopal Church in the

South, the separation having been due to the slavery question. The *Year Book* of the denomination for 1902 shows a membership of 1,516,516, an increase in the last church year of 34,721. The Episcopal board is composed of 13 members, two bishops, E. Embree Hoss and A. Coke Smith, having been elected by the general conference of 1902; and the number of ministers and local preachers is, respectively, 6293 and 4982. Nearly 885,000 scholars and 103,486 teachers are enrolled in 14,133 Sunday schools. There are 48 conferences embraced in the "plan of Episcopal visitation." The annual receipts of the general board of missions were $357,248; the amount raised by the annual conferences for domestic missions, $170,326. The general body has under its care mission conferences among the Indians and the Germans in Texas, and 8 conferences in the West. Its foreign fields comprise China, Japan, Brazil, Mexico, Corea, and Cuba, where 88 missionaries, 100 native preachers, and 151 local preachers and helpers are employed. The church in these lands is represented by 11,713 members. The publishing house of the denomination, in Nashville, Tenn., has assets over liabilities amounting to $926,095. Educational institutions number 77, with a student body of 11,983, and property and endowment aggregating $7,522,583. The board of education conducted, during the last four years, the twentieth century movement to secure $1,500,000 for educational purposes, and succeeded in obtaining subscriptions in excess of that sum—$2,040,948, of which $1,420,512 has been already paid.

The general conference of the Methodist Episcopal Church, South, held its quadrennial session in 1902, May 7-26, in Dallas, Tex. Among its more important acts were plans for the extension of the Epworth League and for greater activity in the development of the missionary conferences in the West; the creation of a board of insurance; the establishment of an order of deaconesses; and provision for a system of correspondence and institute work for the educational improvement of the ministry. The last named institution is maintained in connection with the Biblical department of Vanderbilt University, at Nashville. A motion to remove the time limit on the pastorate, which now is four years, was defeated by a large vote. Serious differences were developed in the discussion over the return of the war claim ($288,000) which was allowed some years ago by the government in settlement of damages to the publishing house in Nashville during the Civil War. The point at issue was whether this money should be returned, inasmuch as more than a third of the amount had been diverted from the purpose the Senate intended. Resolutions were finally passed repudiating any purpose of deception or unfairness on the part of the church; still the bishops proposed to make a conditional offer of repayment. A large majority of the senators who voted for the measure, however, recently signed a statement exonerating the church and declaring it under no obligation to return the money. The year 1902 was noteworthy for the approach between the two great Methodist bodies, as indicated by the action of the joint commission on federation in establishing a joint missionary publishing house, and in the provision for joint committees on a common hymnal and a common catechism and order of worship. See METHODIST EPISCOPAL CHURCH.

METHODIST PROTESTANT CHURCH was founded in 1830 by seceding members of the Methodist Episcopal Church, after a long controversy on the subject of lay representation. According to the latest statistics available, the denomination has 184,097 members and 1217 probationers, 2401 churches, 534 of which own parsonages, and 1647 ministers and preachers, and 1135 unstationed ministers and preachers. The value of church property is $4,754,721. In the Sunday schools, numbering 2034, are enrolled 16,680 officers and teachers and 126,031 scholars. There are foreign missions in Japan, including 3 central stations and 22 outlying stations with 22 missionaries and 32 native preachers and workers. A college and a theological seminary and 4 other institutions are maintained in connection with this work. The church issues several periodicals besides the *Methodist Protestant*, the headquarters of the board of publication being in Baltimore, Md. Its educational interests are represented by colleges at Westminster, Md., Adrian, Mich., Tehuacana, Tex., Kansas City, Kan., Wellsville, O., and Yadkin, N. C., with a theological seminary at Westminster. The Methodist Protestant Church was actively identified, during the year 1902, with the movement toward federation that occupied a prominent place in the year's history. At its initiative, a conference with representatives of the Primitive Methodist Church (*q.v.*) was held, resulting in the formulation of a basis of union which will be proposed in the near future to the two churches. The plea for Christian unity addressed to the bishops of the church by members of the United Brethren in Christ (*q.v.*) included the Methodist Protestant Church among those bodies with which union was desirable. It was announced later that a committee had been appointed by the general conference to confer with the United Brethren. The Congregational National Council, some years since, however, pronounced desirable union with the Methodist Protestant Church, and, the matter having been recently agitated anew by local Congregational bodies, the Congrega-

tional committee on comity, federation, and unity requested the president of the Methodist Protestant general conference to select a committee on terms of union. These overtures, though tentative, mark a distinct advance toward denominational union.

MEXICO, a Spanish-American republic extending from the United States to Central America. The capital is the City of Mexico.

Area, Population, etc.—The estimated area is 767,005 square miles. The population, according to the revised figures of the census of October 28, 1900, was 13,604,923. Roman Catholics numbered 12,517,528 and Protestants 42,266.

Government.—The executive authority is vested in a president, who is chosen by electoral vote, and is assisted by a cabinet of seven members. The legislative power devolves upon a congress of two houses, the senate and the house of representatives. The president in 1902 was General Porfirio Díaz, who was inaugurated on December 1, 1900, for his sixth four-year term. The several states elect their own governors and legislatures. In 1900 the regular army numbered 32,143 officers and men. The navy is inconsiderable.

Finance.—The monetary standard is silver and the unit of value the dollar, worth in United States money 46.4 cents on October 1, 1901, and 41.7 cents on October 1, 1902. The fluctuation of silver has caused such uncertainty in values that it was believed in some quarters in 1902 that Mexico would soon change to a gold basis and thus insure a parity of gold and silver coin. The accumulation of a gold reserve would be necessary and this could be brought about only by borrowing; but such a debt, in view of the fact that the development of the country depends largely upon foreign capital, would probably be wisely incurred for the sake of introducing stable conditions.

Revenue accrues chiefly from customs and indirect taxation, and the largest items of expenditure are for the service of the debt and for the army. Revenue and expenditure in Mexican silver dollars have been as follows for fiscal years ending June 30:

	1898	1899	1900	1901
Revenue	52,697,948	60,139,212	64,261,076	63,283,196
Expenditure	51,815,286	53,499,541	58,309,934	59,423,006

The revenue for the fiscal year 1903 was estimated at 64,823,400 dollars; the expenditure approved by the congress was 65,429,881 dollars, as compared with 62,275,102 dollars for 1902. The largest expenditures approved for 1903 were: For the department of finance, 29,320,405 dollars (including 22,216,893 dollars for the public debt); army and navy, 14,299,786 dollars; public works and communications, 9,461,829 dollars; department of the interior, 5,122,734 dollars; public instruction, 2,646,335 dollars. The total public debt June 30, 1901, was 250,716,856 dollars.

Industries, Commerce, etc.—The principal industries are agriculture and mining. The leading crops are corn, henequen (in Yucatan), wheat, and coffee; the chief metals mined are silver and copper. Manufactures are developing slowly. The values of imports, in Mexican gold dollars (98.3 cents), and of exports, in Mexican silver dollars, are reported as follows for fiscal years ending June 30; the figures given for exports of gold and silver are also included in the total exports:

	1898	1899	1900	1901	1902
Total imports	43,603,492	50,869,194	61,304,914	65,083,453	64,656,349
Total exports	128,972,749	138,478,137	150,056,360	148,659,062	156,168,146
Exports of gold	7,406,230	8,914,693	7,441,290	8,955,536	9,315,257
Exports of silver	67,637,102	67,280,964	63,581,734	72,420,784	59,581,869

According to the message of President Díaz, the national railways in September, 1902, were 15,169 kilometres in length, the state railways 1966, and private lines 307,—total, 17,442 kilometres (10,838 miles). In 1902 it was stated that the improvements on the Tehuantepec Railway, which was being relaid throughout its length of 192 miles, would be completed by May, 1903, though the extensive port works at the terminals, Salina Cruz and Coatzacoalcos, would not be finished before 1905. See paragraph Earthquakes.

Pan-American Conference.—The second conference of American republics convened in the City of Mexico, October 22, 1901, and adjourned January 31, 1902. When the sessions began, the animosities existing between some of the republics led many people to believe that the conference would attain no practical results. But such was hardly the case. Nine treaties were negotiated at the conference. All the delegations except those of the United States, Nicaragua, and Paraguay held plenary powers; by these three delegations treaties were signed *ad referendum.* The most difficult problem before the conference was a treaty of international

arbitration. One group of delegates insisted upon obligatory arbitration on all questions not affecting national honor or independence, while another group was equally insistent that compulsory arbitration should not even be considered. The result was that the conference unanimously agreed to accept the principle of voluntary arbitration adopted by the International Peace Conference at The Hague in 1899, and requested the only American governments participant of that convention, the United States and Mexico, to negotiate with the other signatory powers for the adhesion to it of all the other American republics. At the same time the representatives of nine republics—Argentina, Bolivia, Guatemala, Mexico, Paraguay, Peru, Salvador, Santo Domingo, and Uruguay—signed a treaty of compulsory arbitration on questions not affecting national honor or independence. In addition to this convention (1) between nine governments, eight treaties were negotiated by the general conference as follows: (2) A treaty, by which the several republics engaged to arbitrate, under the Hague convention, disputed claims of citizens of one country against the government of another for pecuniary loss; (3) a general extradition treaty; (4) a treaty for international recognition in the learned professions; (5) a treaty providing for a commission to prepare codes of American public and private international law; (6) a treaty concerning international copyrights; (7) a treaty providing for the exchange of government publications; (8) a treaty concerning patents and trade-marks; (9) a treaty concerning the rights of aliens. (The United States delegation did not sign the last two treaties.)

Besides negotiating these conventions, the conference adopted several resolutions, the more important of which were the following: For the holding of an international congress of experts, in New York City, to consider means of facilitating trade and simplifying customs methods; for securing better sanitation in the ports of the several countries; for an international congress to consider the coffee industry (see COFFEE); for the reorganization of the Bureau of the American Republics (Washington, D. C.); and for the furthering of the inter-continental railway project. The promoters of this last-mentioned scheme, which under present conditions seems chimerical, propose to connect the railway systems of Mexico and Argentina, using as far as possible existing lines. Such lines, it is needless to note, would not be of great importance in constituting parts of the trunk line. A standing committee on this subject was appointed, including Mr. Henry G. Davis, Mr. Andrew Carnegie, and the Mexican ambassador to the United States, Señor Manuel Aspiroz.

Earthquakes.—On October 23, 1902, earthquake shocks occurred in the Tehuantepec region, accompanied by a tidal wave in the Gulf (of Tehuantepec). According to an official report, damage amounting to more than $700,000 was suffered by the harbor improvements at Salina Cruz. The tidal wave swept away many buildings at San Isidore, San Diego, Port Angel, and other coast towns. On January 17 there were violent earthquake shocks centring at the capital of the province of Guerrero, Chilpancingo, where, according to reports, several hundred persons were killed or injured. In the latter part of October earthquakes and volcanic eruptions occurred in southern Mexico (states of Chiapas and Tabasco).

MICA. See MINERAL PRODUCTION.

MICHIGAN, a central State of the United States, bordering on the Great Lakes, has an area of 97,990 square miles. The capital is Lansing. Michigan was organized as a Territory June 30, 1805, and admitted as a State January 26, 1837. The population in 1900 was 2,420,982; in June, 1902, as estimated by the government actuary, it was 2,490,000. The populations of the largest cities in 1900 were: Detroit, 285,704; Grand Rapids, 87,565; Saginaw, 42,345; and Bay City, 27,628.

Finance.—The report of the treasurer of Michigan for the year ending June 30, 1902, showed that the treasury balance on July 1, 1901, was $2,627,523.84. The total receipts were $7,079,429.21, the total disbursements $6,253,141.91, and the balance on June 30, 1902, $3,453,811.14. At the same time the trust funds of the State schools, colleges, and universities amounted to $6,497,036.49, and the bonded debt of the State, consisting of war loan bonds of 1898, was $416,300. Of the receipts during the year $2,104,128.63 were derived from specific taxes as follows: From railroads, $1,430,434.62; from insurance companies of all kinds, $306,863.04; from telephone companies, $46,914.01; from express companies, $30,213.26; from water power companies, $10,000; from franchise funds, $55,925.78; and from the inheritance tax, $211,780.92.

Agriculture and Mining.—The farm crops of Michigan for 1902 were perhaps a little above the average in quantity except corn, which fell about 15 per cent. below the ten-year average. The principal products as given by the *Crop Reporter* were as follows: Corn, 1,333,099 acres, 39,193,814 bushels, value $18,300,783; winter wheat, 1,056,117 acres, 18,693,218 bushels, $13,312,245; rye, 155,288 acres, 2,779,655 bushels, $1,362,031; potatoes, 270,939 acres, 19,507,608 bushels, $7,998,119; hay, 2,193,567 acres, 3,180,672 tons, $26,399,578.

During the calendar year 1902 the process of consolidation of the iron ore mines in Michigan, which began several years ago, finally arrived at a point where the greater number of the best mines of the State were consolidated in the hands of the United States Steel Corporation. There was a large increase in the output of Michigan mines in 1902. The production of lake copper in that year was 168,950,000 pounds, an increase over 1901 of about 15 per cent. There was also a large increase in the output of iron ore. In 1902 it was 12,144,018 tons, as against 9,802,584 tons in 1901. There was a remarkable growth of traffic through the canals at the Sault Ste. Marie. The tonnage in 1901 was 28,403,065 tons; in 1902, 35,961,146 tons.

Railroads.—The latest official statistics of railroads of Michigan covering the year 1900 show an increase over 1899 in passenger business of nearly 12.5 per cent. and in freight business more than 4 per cent. The total length of track in the State was 10,639.84 miles in 1900, represented by $19,164.64 stock and $22,548.57 bonds per mile. In 1899 the mileage was 10,497.07, with $15,599.06 stock and $24,335.17 bonds per mile. The passengers carried numbered 54,088,252, as against 48,195,594 in 1899; and the amount of freight hauled amounted to 122,737,870 tons, as against 117,834,058 tons in 1899. The gross earnings per mile of road were $7,855.95 in 1900 and $7,571.49 in 1899. The number of employees in 1900 was 117,606, as against 86,402 in 1899. The marked growth in railroad business and construction, indicated by the official returns, continued throughout 1901 and 1902 with increased activity. The Michigan Central Railroad, on December 27, began suit in the Wayne County Circuit Court against the State for $6,000,000 for damages resulting from the revocation of the railroad's special charter by the special session of the legislature toward the close of Governor Pingree's administration. In revoking the charter the State gave its consent to be sued.

Conventions and Platforms.—The Republican State convention was held at Detroit on June 26. Regarding the Philippines, the platform said: "We denounce all unwarranted and disgraceful attacks upon the defenders and upholders of our flag in the Philippines, and we pledge faithful support to the government in the efforts to establish good government and personal liberty in those islands." On the tariff and the trusts the platform said: "We continue our abiding faith in the protective tariff, and are opposed to all efforts to destroy it or emasculate it or weaken its beneficent operation;" and "we realize that large combinations of capital may be necessary, but we desire to express our condemnation of all conspiracies and combinations to restrict business, to create monopolies, to limit production or control prices, and we favor such legislation as will effectually restrain and prevent all such abuses."

The convention registered its approval of President Roosevelt's administration and of the record of the Republican delegation to Congress from Michigan; reaffirmed belief in the principles of the national platform of 1900; favored such amendments to the tax laws of the State as will justly and efficiently relieve the owner of real estate from double taxation by reason of taxes on outstanding mortgage thereon, and favored a safe, equitable and effective primary election law by which the nomination of all candidates will be directly controlled by the people. Russell A. Alger was named as the successor to James McMillan, deceased, in the United States Senate, and Judge William M. Carpenter, of Detroit, was nominated for justice of the Supreme Court, to fill the vacancy caused by the death of Justice Charles D. Long. General Alger's supporters won a victory over the friends of Dexter M. Ferry, of Detroit, who favored a resolution to the effect that no expression of sentiment on the candidacy for senator be taken by the convention. The resolution was lost by a vote of 427 to 588. The convention then unanimously indorsed General Alger as the candidate of the party for United States senator.

The Democratic State convention met at Detroit on July 31. State issues absorbed nearly the entire platform. George H. Durand, a gold Democrat, was nominated for the governorship, but proved unacceptable to the Democratic central committee, and declined the nomination. His brother, L. T. Durand, was chosen in his place. The platform declared the supreme issue in the State to be the destruction of boss rule, and, as a means to this end, demanded primaries for the direct nomination of candidates by the people. Other planks called for the election of United States senators by direct vote; the adoption of "the system known as the initiative and referendum, and the imperative mandate"; equal taxation and equal assessments; and municipal ownership of public utilities when so demanded by a referendum vote of the citizens of a municipality.

Elections, etc.—At the regular biennial State election, held on November 4, 1902, the full Republican State ticket was elected. The total vote for governor was: Bliss (Rep.), 211,261; Durand (Dem.), 174,077, giving Bliss a plurality of 37,184. On September 27 Governor Bliss appointed General Russell A. Alger United States

senator to fill the vacancy caused by the death of Senator James McMillan. The State legislature for 1903 will consist of 121 Republicans and 11 Democrats.

State Officers.—For 1902: Governor, Aaron T. Bliss; lieutenant-governor, Orrin W. Robinson; secretary of state, Fred. M. Warner; treasurer, Daniel McCoy; auditor, Perry F. Powers; attorney-general, Horace M. Oren; superintendent of public instruction, Delos Fall; commissioner of the State land office, Edwin A. Wildey; commissioner of insurance, J. Victor Barry (appointed)—all Republicans. For 1903: Governor, Aaron T. Bliss (elected for two years, term ending January, 1905); lieutenant-governor, Alexander Maitland; secretary of state, Fred. M. Warner; treasurer, Daniel McCoy; auditor, Perry F. Powers; attorney-general, Charles A. Blair; superintendent of public instruction, Delos Fall; commissioner of the State land office, Edwin A. Wildey; commissioner of insurance, J. Victor Barry (appointed)—all Republicans.

Supreme Court.—For 1902 and 1903: Chief justice, Frank A. Hooker; associate justices, Joseph B. Moore, William L. Carpenter, Claudius B. Grant, and Robert M. Montgomery—all Republicans.

For Congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

MICHIGAN, UNIVERSITY OF, Ann Arbor, Mich., founded 1837. During the college year ending in June, 1902, there was a slight falling off in attendance in the schools of medicine, law, and dentistry, owing to increased requirements for admission, but a slight increase in the literary department and a large increase in engineering (130). The aggregate attendance, including the summer session, was 3782, as against 3712 the preceding year. Exclusive of the summer session the attendance was 3508, of whom 1400, including 668 women, were students in the literary department, 489 in engineering, 513 in medicine and surgery, 854 in law, 68 in pharmacy, 60 in the Homœopathic Medical College, and 203 in dental surgery. The graduates numbered 823. Of the students 2156 were from Michigan, and 10 foreign countries were represented, and every State and Territory except Delaware, Louisiana, and Alaska. The total attendance of women was 725. A noteworthy feature of the university's co-educational system is the change in the attitude of women toward the courses of instruction, indicated by the fact that in the earlier days of co-education 65 per cent. of the women graduates were from the professional schools, while at the present time about 87 per cent. select the literary courses. The libraries show a gain of 9539 volumes over 1901, making a total of 165,000 volumes. The recorded circulation of books, estimated at half the actual use, was 167,949. The periodicals regularly received numbered 1000. During the year the two hospitals of the university treated 4164 patients. The result of increased power of election in the literary department showed a falling off in Greek of 45 per cent.; in Latin of 33 per cent., and in mathematics of 55 per cent., with large gains in German and history. The six-year law and medical courses, in which a student may earn both the B. A. and B. L., or the B. A. and M. D. degrees, have grown in popularity. The engineering department has developed rapidly. A course in marine engineering has been added with the degree of B. S., and the construction of a new engineering building has been undertaken. To the four years' course in engineering a requirement has been added calling for six weeks' additional work in the summer at the end of the third year. The completion of a spacious building for medical laboratories has added greatly to the facilities for instruction. The law faculty have established a journal, the proceeds of which are to be appropriated to the increase of the law library. The university has taken steps to stop the fraudulent use of its medical diplomas and has secured the conviction of one offender. The Barbour gymnasium has been completed, and a desirable plot of land adjacent to the campus has been purchased. Among the gifts of 1902 are a large tract of valuable timber land in Humboldt County, Cal., given by Mrs. Margaret E. Hunt for the endowment of scholarships in the literary department; two new fellowships in bacteriology from the Rockefeller Research Fund; and an addition of 17 acres to the campus, given by Hon. D. M. Ferry. The president's report calls attention to the need of additional buildings and the endowment of graduate fellowships. The treasurer reports toal receipts for the year of $741,000, with expenditures of $690,063.

MILITARY ACADEMY, UNITED STATES, West Point, N. Y., opened 1802. The cadets in 1902 numbered 464 and the faculty 71. The library had 45,000 volumes. The chief change during the year was the new regulation permitting entrance to the academy without the mental examination to candidates who can produce a certificate of graduation from a public high school or State normal school, or who are regular students of an incorporated college or university with conditions as to any of the subjects required by the West Point examination. The new rule was put into effect for the first time in the summer of 1902, and the semi-annual examination in December showed that it was working well. The centennial anniversary of the founding of the academy was celebrated with appropriate ceremonies June 9-11,

PRESIDENT ROOSEVELT at the West Point Centennial

1902, and aroused universal interest among graduates, who spared no efforts to make it successful. The exercises included addresses by President Roosevelt, Secretary of War Root, and others, the unveiling of a commemorative tablet, a banquet, and a baseball game between the academy and Yale. A feature of the celebration not on the programme, was the bestowal by the President of a medal of honor on Cadet Calvin P. Titus, of the fourth class, for "gallantry at Peking, China, August 14, 1900, while a soldier of the Fourteenth United States Infantry." This is the first medal of honor given to an undergraduate of the academy.

MILITARY MANŒUVRES. See MANŒUVRES, MILITARY AND NAVAL.

MILLER, ALFRED BRASHEAR, an American educator, died at Waynesburg, Pa., January 30, 1902. He was born in Brownsville, Pa., October 16, 1829, and in 1853 graduated from Waynesburg College in the first class ever sent out from that institution. He was professor of mathematics there from 1853 to 1858 and acted as president from 1858 to 1899, when he was retired as president emeritus. For ten years he held a pastorate in Waynesburg as a clergyman of the Cumberland Presbyterian Church, and was well known as a lecturer before teachers' institutes, Chautauqua conventions, and summer schools. Besides contributing extensively to newspapers and magazines upon religious and educational topics he was the author of *Doctrines and Genius of the Cumberland Presbyterian Church.*

MINERALOGY. Interesting experiments in the production of diamonds by laboratory methods were carried out during 1902 by Professor Goldschmidt, of Vienna. A rock similar in composition to the matrix of the South African diamonds was used for fusing and crystallizing the carbon, apparently with better success than has been obtained with iron. The diamonds were of microscopic size, averaging only 0.05 millimetre in diameter, but they were transparent and showed perfect octahedral form. The following is a list of the new minerals described in 1902: *Melanochalcite,* a compound of the hydroxide and peroxide of copper; *baumhauerite,* a sulpharsenite of lead; *coolgardite,* a telluride of gold, silver, and lead; *anapite,* an iron-calcium phosphate; *koenenite,* an oxychloride of aluminum and magnesium; *chalmersite,* a sulphide of iron and copper; *plumbojarosite* and *natrojarosite,* hydrated sulphates of iron with lead and sodium; and *neotantalite.*

MINERAL PRODUCTION OF THE UNITED STATES. The accompanying table of the mineral and metal production of the United States in 1900 and 1901 is abstracted from the annual statistical reports of the Division of Mining and Mineral Resources of the United States Geological Survey. For the second time in the country's history the value of the mineral output exceeded $1,000,000,000, having reached a grand total in 1901 of $1,086,529,521, which represents a gain of 2.15 per cent. over the total for 1900. The output in 1902, according to reliable estimates, showed a marked increase in all the important substances except anthracite coal, the production of which fell off considerably owing to the strike of the Pennsylvania miners. For detailed statistics and information as to mining developments during 1901 and 1902, see ANTIMONY; ARSENIC; COAL; COKE; COPPER; GEMS; GOLD; LEAD; MERCURY; NATURAL GAS; PETROLEUM; SILVER; TIN; and ZINC.

PRODUCTS.	1900		1901	
	Quantity.	Value.	Quantity.	Value.
METALLIC.				
Pig iron, spot value *a*.....long tons *b*	13,785,242*c*	$259,944,000	15,878,354*c*	$242,174,000
Silver, coining value *d*.....troy ounces	57,647,000	74,533,495	55,214,000	71,387,800
Gold, coining value *e*..... "	3,829,897	79,171,000	3,805,500	78,666,700
Copper, value at New York City *f*.....pounds	606,117,166	98,494,039	602,072,519	87,300,515
Lead, value at New York City.....short tons *g*	270,824	23,561,688	270,700	23,280,200
Zinc, value at New York City..... "	123,886	10,654,196	140,822	11,265,760
Quicksilver, value at San Francisco.....flasks *h*	28,317	1,302,586	29,727	1,382,305
Aluminum, value at Pittsburg.....pounds	7,150,000	1,920,000	7,150,000	2,238,000
Antimony, *j* value at San Francisco...short tons	4,226	837,896	2,649	542,020
Nickel, *k* value at Philadelphia.....pounds	9,715	3,886	6,700	3,551
Tin..... "	None	.....	None	.....
Platinum, value (crude) at San Francisco, troy ounces.....	400	2,500	1,408	27,526
Total value of metallic products.....	.....	$550,425,286	.....	$518,268,377

a. By "spot" value is meant value at place of production.
b. Long tons are tons of 2,240 avoirdupois pounds, short tons are tons of 2,000 avoirdupois pounds.
c. Iron ore, 1900, 27,553,161 long tons, value $66,590,504; 1901, 28,887,479 long tons, value $49,256,245.
d. Figures of production furnished by the Bureau of the Mint, Treasury Department. Coining value $1.2929 per troy ounce. Commercial value, 1900, $35,741,140; 1901, $35,792,200.
e. Figures of production furnished by the Bureau of the Mint, Treasury Department. Coining value, $20.6718 per troy ounce.
f. Including copper made from imported pyrites.
g. The products from domestic ores only.
h. Of 76.5 avoirdupois pounds net.
j. Includes antimony smelted from imported ores and antimony contained in hard lead.
k. Including nickel in copper-nickel alloy, and in exported ore and matte.

Products.		1900 Quantity.	1900 Value.	1901 Quantity.	1901 Value.
NON-METALLIC (spot value a).					
Fuels:					
Bituminous coal *l*	short tons	212,314,912	$220,913,513	225,826,849	$236,406,449
Pennsylvania anthracite	long tons	51,221,353	85,757,851	60,242,560	112,504,020
Natural gas		.....	23,698,674	.....	27,067,500
Petroleum	barrels *m*	63,620,529	75,989,313	69,389,194	66,417,335
Structural Materials:					
Brick clay		.....	12,000,000	.....	13,800,000
Cement	barrels *n*	17,231,150	13,283,581	20,068,737	15,786,789
Stone *o*		.....	44,321,345	.....	55,615,926
Abrasive Materials:					
Corundum and emery	short tons	4,305	102,715	4,305	146,040
Garnet for abrasive purposes	"	3,185	123,475	4,444	158,100
Grindstones		.....	710,026	.....	580,703
Infusional earth and tripoli	short tons	3,615	24,207	4,020	52,950
Millstones		.....	32,858	.....	57,179
Oilstones, etc.		.....	174,087	.....	158,300
Chemical Materials:					
Borax, Refined	short tons	1,602	170,036	5,344	697,307
Borax, Crude	"	24,235	848,215	17,867	314,811
Bromine	pounds	521,444	140,790	552,043	154,572
Fluorspar	short tons	18,450	94,500	19,586	113,808
Gypsum	"	594,462	1,627,203	659,659	1,577,493
Marls	"	60,000	30,000	99,880	124,880
Phosphate rock	long tons	1,491,216	5,359,248	1,483,723	5,316,403
Pyrite	"	204,615	749,991	234,825	1,024,449
Salt	barrels *p*	20,869,342	6,944,603	20,566,661	6,617,449
Sulphur	short tons	3,525	88,100	7,690	223,430
Pigments:					
Barytes (crude)	short tons	67,680	188,089	49,070	157,344
Cobalt oxide	pounds	6,471	11,648	13,360	24,048
Mineral paints *q*	short tons	72,222	881,363	61,460	789,962
Zinc white	"	48,840	3,667,210	46,500	3,720,000
MISCELLANEOUS.					
Asbestos	short tons	1,054	16,310	747	13,498
Asphaltum	"	54,389	415,958	63,134	555,336
Bauxite	long tons	23,184	89,676	18,905	79,914
Chromic iron ore	"	140	1,400	368	5,790
Clay (all other than brick)		.....	1,840,377	.....	2,576,932
Feldspar	short tons	24,821	180,971	34,741	220,422
Fibrous talc	"	63,500	499,500	69,200	483,600
Flint	"	32,495	86,351	34,420	149,297
Fuller's earth	"	9,698	67,535	14,112	95,835
Graphite		5,507,855*r* 616	197,579	3,967,612*r* 809*s*	167,714
Limestone for iron flux	long tons	7,495,435	3,687,394	8,540,168	4,659,836
Magnesite	short tons	2,252	19,333	13,172	43,059
Manganese ore	long tons	11,771	100,289	11,995	116,722
Mica (sheets)	pounds	456,283	92,758	360,060	98,859
Mica (scrap)	short tons	5,497	55,202	362,171	19,719
Mineral waters	gallons used	47,558,784	6,245,172	55,771,188	7,586,962
Monazite	pounds	908,000	48,805	748,736	59,262
Precious stones		.....	233,170	.....	289,050
Rutile	pounds	300	1,300	44,250	5,710
Soapstone	short tons	27,943	383,541	28,643	424,888
Total value of non-metallic products		.....	$512,195,262	.....	$567,261,144
Total value of metallic products		.....	550,425,286	.....	518,268,377
Estimated value of mineral products unspecified *t*		.....	1,000,000	.....	1,000,000
Grand total		.....	$1,063,620,548	.....	$1,086,529,521

l. Including brown coal and lignite, and anthracite mined elsewhere than in Pennsylvania.
m. Of 42 gallons.
n. Of 300 pounds for natural cement, and 400 pounds for artificial Portland cement.
o. Not including limestone for iron flux, or stone for grindstones.
p. Of 280 pounds net.
q. Including metallic paint, ocher, umber, Venetian red, sienna, ground soapstone, ground slate, and mineral black.
r. Crystalline graphite, pounds.
s. Amorphous graphite, short tons.
t. Including building sand, glass-sand, iron ore used as flux in lead smelting, tin ore, nitrate of soda, carbonate of soda, sulphate of soda, and alum clays used by paper manufacturers.

MINNEAPOLIS. See MUNICIPAL GOVERNMENT (paragraph Minneapolis).

MINNESOTA, a northwestern State of the United States, has an area of 83,365 square miles. The capital is St. Paul. Minnesota was organized as a Territory March 3, 1849, and was admitted as a State May 11, 1858. Population in 1900 was 1,751,394; in June, 1902, as estimated by the government actuary, it was 1,844,000. The populations of the three largest cities in 1900 were: Minneapolis, 202,718; St. Paul, 163,065; and Duluth, 52,969.

Agriculture and Mining.—The chief crops of Minnesota showed a falling off in yield per acre for 1902, compared with the average for the previous ten years, but owing to an increased area under cultivation the total yield of nearly all crops was considerably increased. The reports as given in the *Crop Reporter* for the year 1902 were as follows: Corn, 1,483,621 acres, 53,826,559 bushels, value $13,530,624; spring wheat, 5,737,583 acres, 79,752,404 bushels, $48,648,966; oats, 2,109,223 acres, 82,259,697 bushels, $22,210,118; barley, 907,561 acres, 25,956,245 bushels, $9,603,811; potatoes, 137,270 acres, 13,452,460 bushels, $4,170,263; hay, 841,716 acres, 1,481,420 tons, $7,940,411; flaxseed, 667,500 acres, 6,942,000 bushels, $7,427,940. The enormous demands of the iron and steel market caused rapid development of Minnesota's iron mines in 1902. The Vermilion Range produced 2,084,263 gross tons, against 1,786,063 tons in 1901. The Mesabi mines, the newest iron mines in the Lake region, were also by far the most productive and experienced the greatest development in 1902. The output in 1901 was 9,004,890; in 1902, 13,342,840 gross tons. These two ranges yielded about 40 per cent. of the total iron production.

Railroads.—The latest available report of the commissioners of railroads, covering the fiscal year ending June 30, 1901, gives the length of main lines as 6993.63 miles; the gross earnings $42,459,262, a decrease of $2,490,831 over 1900; the operating expenses $25,703,735, a decrease of $274,483 over 1900. The total number employed on the entire lines entering Minnesota were 155,770, drawing wages amounting to $89,727,795.

Legislation.—An extra session of the State legislature convened on February 4, 1902, to take action upon the report of the tax commission created by the legislative act of February 26, 1901. The commission, consisting by appointment of the governor, Hon. W. J. Hahn, Hon. H. W. Childs, and Hon. G. S. Ives, had been instructed to devise a complete system for the taxation of all kinds of property, tangible and intangible, and to report to the governor before February, 1902. In transmitting the commission's report the governor strongly urged that it be enacted into law, stating that it appeared to be as adequate a system as could be devised under the existing limitations of the constitution. The governor recommended also that a permanent tax commission be created. The legislature, however, did not fully accept the commission's findings. It enacted, nevertheless, a real estate tax code, levied a tax of ½ to 10 per cent., depending upon the degree of relationship, upon all sums devised by will in excess of $10,000, and it proposed a constitutional amendment to be voted on in November, 1902, to enlarge the taxing powers of the legislature. The amendment authorized the legislature to levy a tax on franchises in addition to a tax on real and personal property, or to levy a tax upon gross earnings in lieu of a tax on franchises, or on franchises and real property. There might also be levied under the amendment a registry tax on real estate mortgages and an income tax upon evidences of indebtedness, annuities and personal income.

With a view to obtaining more accurate data for the purpose of taxing the railways upon the basis of gross earnings, the public examiner authorized by the laws of 1878 to examine banks and other moneyed corporations was also required to examine yearly into the finances of railways created under the laws of Minnesota or operating therein. With the same general purpose of having more governmental control of railroads, Congress was memorialized to pass the bill introduced February 5 in the Senate by Knute Nelson, investing the Interstate Commerce Commission with power to prescribe railroad rates instead of as at present being merely permitted to declare existing rates unreasonable.

Northern Securities Case.—In accordance with the recommendation of the governor, the legislature appropriated $25,000 for the prosecution in the federal courts or if that should fail in the State courts, of the case against the Northern Securities Company. In stating his belief that the Northern Securities Company was expressly organized among other things for the purpose of evading and violating the laws of Minnesota by consolidating the properties of the Great Northern and Northern Pacific companies, which owned parallel and competing lines, the governor pointed out the two express sections of the general statutes of Minnesota violated and the sections of the charter of the Northern Securities Company authorizing as it were a violation of the State statutes. The sections of the Minnesota statutes referred to are as follows:

Section 2716.—No railroad corporation shall consolidate with, lease or purchase, or in any way become owner of or control any other railroad corporation, or any stock, franchises, rights or property thereof, which owns or controls a parallel or competing line.

Section 2717.—No railroad corporation, or the lessees, purchasers or managers of any railroad corporation, shall consolidate the stock, property or franchises of such corporation with, or lease or purchase the works or franchises of, or in any way control any other railroad corporation owning or having under its control

a parallel or competing line; nor shall any officer of such railroad corporation act as an officer of any other railroad corporation owning or having the control of a parallel or competing line.

Sections 3 and 4 of the charter of the Northern Securities Company authorize the corporation

"To purchase, hold, sell, assign, transfer, mortgage, pledge or otherwise dispose of shares of the stock of any other corporation or corporations, association or associations of the State of New Jersey, or any other State, Territory or country, and while owner of such stock to exercise all the rights, powers, and privileges of ownership, including the right to vote thereon. To aid in any manner any corporation or association of which any bonds or other securities or evidences of indebtedness or stock are held by the corporation; and to do any acts or things designed to protect, preserve, improve or enhance the value of any such bonds or other securities or evidences of indebtedness or stock."

Conventions and Platforms.—The Democratic State convention, held at Minneapolis June 25, 1902, referred in terms of high praise to William J. Bryan; condemned the policy of the government in regard to Cuba and reciprocity; denounced the power of the modern trusts, and favored the revocation of tariff benefits which they enjoy, and the passage of legislation for their control; advocated the income tax, the popular election of United States senators, municipal ownership of public service corporations, direct legislation and home rule in local taxation, the observation of a general eight-hour work day, the enforcement of the State's law forbidding merger of competing railroads; opposed "government by injunction," and denounced the ship subsidy bill. The Republican State convention, held at St. Paul on July 1, 1902, indorsed the policy of President Roosevelt; declared the adherence of the party to the policy of protection, but favored such modifications as might be required by changing conditions; to remove any burden from the people and to promote foreign trade.

Elections.—At the regular biennial State election, held November 4, 1902, the full Republican State ticket was elected. The vote for governor was Van Sant (Rep.), 155,861; Rosing (Dem.), 99,375, giving the Republican candidate a plurality of 56,486. The State legislature for 1903 will consist of 43 Republicans, 12 Democrats, 1 Populist, 6 Fusionists, and 1 Independent Republican in the senate, and 96 Republicans and 23 Democrats in the house.

State Officers.—For 1902: Governor, Samuel R. Van Sant; lieutenant-governor, Lyndon A. Smith; secretary of state, Peter E. Hanson; auditor, Robert C. Dunn; treasurer, Julius H. Block; attorney-general, W. B. Douglas; railroad and warehouse commissioners, Ira B. Mills, Charles F. Staples, Joseph Miller—all Republicans. For 1903: Governor, Samuel R. Van Sant, elected for two years, term ending January, 1905; lieutenant-governor, R. W. Jones; secretary of state, P. E. Hanson; auditor, S. G. Iverson; treasurer, J. H. Block; attorney-general, W. B. Douglas; railroad and warehouse commissioners, Ira B. Mills, Charles F. Staples, Joseph Miller—all Republicans.

Supreme Court: For 1902 and 1903: Chief justice, Charles M. Start; associate justices, Loren W. Collins, Calvin L. Brown, John A. Losely, and Charles L. Lewis.

For Congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

MINNESOTA, UNIVERSITY OF, Minneapolis, Minn., founded 1851. In 1901-02 the attendance, excluding duplicates, was 3656 (of whom 1042 were women) distributed as follows: Graduate students, 176; college, 1179; engineering and mechanic arts, 345; school of mines, 109; agriculture, 619; law, 504; medicine, 551; summer school, 237. The gain in attendance over the preceding year was 243, and indications pointed to a still greater increase in 1903. There were 110,000 volumes in the library. The university's income for the year was $592,000. The requirements for admission to the College of Medicine and Surgery were raised so as to include one year of college work in addition to four years of high school work. There were constant accessions to the library and to laboratory equipments amounting to about $10,000 during 1902.

MISSIONARY ASSOCIATION, AMERICAN, a Congregational society, organized in 1846, which carries on missionary and educational work, a feature of the latter being industrial training, among six different peoples comprised in the population of the United States. Its largest field is in the South, where there are missions and schools for negroes and the mountaineers; work is conducted also in Alaska and Porto Rico, and among the Indians and the Chinese. The association (1901-02) is represented by 749 missionaries, and under its auspices are 107 educational institutions with 15,959 pupils, and 254 churches having 14,071 members. For negroes there are six institutions of higher education. The total receipts for current expenses were $368,819.50, or, including the income from special funds, $464,290.84. At the fifty-sixth annual meeting in New London, Conn., October 21-23, were

presented addresses on the various fields of the organization, while that of the president, Rev. Washington Gladden, D. D., dealt with the "fundamental requisites for the elevation of a race and the obligations of an advanced race toward its inferiors." The fact that the association had passed the fifth successive year without debt was a cause for gratification. In 1903 the meeting will be held in Cleveland, O. The *American Missionary*, published monthly, has increased considerably in circulation during the past two years. Corresponding secretaries, Rev. A. F. Beard, D. D., Rev. F. P. Woodbury, D. D., Rev. C. J. Ryder, D. D.; treasurer, H. W. Hubbard: Fourth Avenue and Twenty-second Street, New York City.

MISSIONS, PROTESTANT FOREIGN. Steady progress along the ordinary lines of missionary activity, rather than great events, characterized the history of foreign missions in 1902. China, Japan, India, Africa, and the Philippines were the fields that came most prominently into notice. At home interest in the work of missions was indicated by several important gatherings. Among these were the national convention of the Disciples of Christ in Omaha, Neb., which is said to have been the most successful missionary rally in the history of the denomination; the general missionary conference of the Methodist Episcopal Church in Cleveland, O.; and in the Protestant Episcopal Church, the Advent missionary meetings in New York City and vicinity. The convention of the Methodist Episcopal Church, in some respects, the most remarkable missionary gathering of the year, was the first general missionary conference ever held by that body; more than $300,000 was raised for missions at this meeting, which was made of special interest by the presence of representative workers from various mission lands. That the student volunteer movement is a great factor in the missionary world of to-day was proven by the fourth international convention in Toronto, Canada, February 26 to March 2. This convention, with a central theme, *The Evangelization of the World in this Generation*, says the New York *Independent*, "sounded the strongest call yet uttered for volunteers . . . for the foreign field, and gave evidence of such a response to that call as the world has not yet known." One hundred persons announced their purpose to become missionaries; and $15,000 annually for the next four years' work was pledged. Nearly 3000 delegates, representing 22 countries and 465 colleges, attended the convention.

Much interest was taken in the subject of economy of administration during the past year, the advances toward federation of the various Baptist and Congregational societies, in particular, being noteworthy. The Methodist Episcopal Church, too, has made some tentative steps toward consolidation of its benevolent organizations. The incorporation of a bureau of missions, with headquarters at 287 Fourth Avenue, New York City, was among the prominent events of 1902. This institution, which has been entrusted with the library, museum, and other property of the ecumenical missionary conference of 1900, whose influence it seeks to perpetuate and increase, is to serve also as a general bureau of information. Its trustees have been selected from several different denominations, and are men eminent in mission work. Its officers are: Alexander Maitland, president; S. D. Scudder, treasurer; and Rev. Edwin M. Bliss, D. D., secretary. The various missionary societies, considered collectively, are in a prosperous financial condition; contributions, generally, were larger than those of 1901, and never before were so many organizations free from debt. A further advance is shown in the augmented force of workers. Another interesting feature of the year was the increase in influence of the lay element. This movement, of course, has been going on for some years, and in 1902, was perhaps more noticeable in the field of home missions, inasmuch as two of the more important appointments were made on home mission boards.

Greater accessibility of the field is one of the most encouraging features to be noted in connection with the foreign mission work of the present time. It is stated on missionary authority, that the influence of non-Christian religions is growing less, especially with the educated classes. This is particularly noteworthy in the case of Mohammedanism, inasmuch as its adherents are known for their inaccessibility and for faithfulness to their religion. Practical results of missionary enterprise are shown by the increase in the number of self-supporting churches and by the growth of the missionary spirit in the native church. In some mission lands, it is believed, the native church would still flourish, were all missionaries withdrawn. Cooperation among the various denominations in the foreign fields is more marked than it is at home. As instances of this tendency may be cited the union evangelistic movement in Japan, the efforts toward organic union of the Presbyterian and Reformed bodies in India and China, the establishment of a joint missionary publishing house at Shanghai, with other considerations in behalf of federated interests, by the Methodist Episcopal and the Methodist Episcopal, South, churches, and the Evangelical Union of the Philippines which includes all Protestant organizations at work in the islands, excepting the Episcopal Church.

There are in the United States some 50 foreign missionary societies, the oldest

of which, the American Board of Commissioners of Foreign Missions, was established in 1810. Most of these are agencies of the denominations; some, however, are independent organizations. The latest statistics of Protestant foreign missions for the world, as published in the almanac of the American board, are presented in the following summary:

Countries.	Stations and Out-Stations.	Missionaries.		Native Laborers.	Communicants.	Added Last Year.	Adherents (Native Christians).	Under Instruction.	Income.
		Men.	Women.						
United States..	6,877	1,590	2,420	19,355	477,961	41,713	984,019	236,076	$6,168,277
Canada.....	589	159	208	519	16,847	994	29,100	9,245	350,099
Great Britain and Ireland..	13,293	2,811	3,264	31,559	415,999	23,363	1,200,172	506,035	8,932,900
France.....	552	65	58	300	14,960	423	25,000	12,080	270,260
Germany.....	2,091	900	815	6,421	161,180	8,706	386,156	2,133	1,290,812
Netherlands.....	230	69	12	280	5,041	110	9,000	47,500	124,126
Scandinavia....	1,122	185	156	2,058	39,097	3,441	75,000	45,000	366,364
Asia, Africa, Australia, etc.	4,327	755	401	18,320	314,550	12,140	500,000	162,000	866,305
Totals.....	29,081	6,534	7,334	78,812	1,445,635	90,890	3,208,447	1,020,069	$18,369,163

China, as a mission field, is of peculiar interest. The anti-foreign outbreak of 1900 has been succeeded by an apparent reaction, as evidenced by the promulgation of edicts favorable to western civilization and by greater interest in it on the part of the people. The permanent influence of this reform movement, however, may be easily overestimated. There were in 1902 uprisings in the provinces of Sze Chuen and Hu Nan, resulting in the massacre of two missionaries and a number of converts. The increased taxes imposed to meet the indemnity for losses by foreigners in 1900 form an additional source of discontent to the Chinese. Twenty-five per cent. of this indemnity to missionaries and missionary societies was paid in 1902. The reorganization of mission work in almost all sections of the country has been accomplished. *Japan* is one of the most encouraging mission fields, success in that country being ascribed largely to effective organization. The union evangelistic movement, in which all but one of the Protestant denominations there operating are interested, was begun in 1901 and was continued in 1902. Union evangelistic work is conducted practically throughout the main island. This cooperation movement is important as it represents an entirely new phase of Christian, as well as missionary, development. The alliance between Japan and Great Britain is worthy of note since it secures for the present, the independence of Corea and favorable opportunity to continue missionary operations in that land. In *India* the year 1902 was marked by a great missionary conference of all evangelical bodies at work in that country. This, the fourth decennial conference, the previous meetings having been at Allahabad (1872), Calcutta, and Bombay, was held at Madras, in December, and was attended by 300 delegates representing 60 societies. The most interesting topic of the conference was the growth of the work in the last ten years, as indicated by the figures of the census of 1901 which show a total Christian population of 2,923,349. Of this total the Protestant Christians number 1,148,259, more than twice as many as in 1891, while the per cent. of gain of all Christians was 28. The conference issued an appeal asking for a fourfold increase in the force of missionaries. It is estimated that Protestant missions in India require an annual expenditure of more than $3,000,000. The Evangelical Union of the *Philippines* celebrated its first anniversary in 1902. The territorial divisions, as agreed upon at the inception of the organization, have been faithfully observed by the various missionary bodies. The American board entered the Philippines in 1902. The Protestant Episcopal Church, under the leadership of the recently created bishop of the Philippines, Charles H. Brent, began last year on a great movement in behalf of the English speaking population, as well as of the natives. The Methodist Episcopal and Presbyterian churches also have in view plans for extended operations. Much money is being raised by the denominations for church work in the islands, a fund of $1,000,000 having been projected by Episcopalians. The cause of the movement under Aglipay (see Roman Catholic Church) has been ascribed to the awakening of the Filipinos to a desire for religious freedom. In *Africa* the rapid development of missions in the populous kingdom of Uganda, Central Africa, is noteworthy. The converts there now number some 30,000 with 2000 native evangelists and 700 churches; ten years ago there were but 200 converts. This church is self-supporting. Missions were established in 1902 in the vicinity of Khartum.

Perhaps no single event of the missionary world in recent years attracted more general interest than the capture by brigands in 1901 of Miss Ellen M. Stone, a missionary of the American board in Macedonia. Miss Stone was released February 23, 1902, on payment of a large ransom. The most important publication on foreign missions in 1902 was the work of the Rev. James S. Dennis, *Centennial Survey of Foreign Missions*, a statistical review of missions at the end of the last century.

MISSISSIPPI, a Gulf State of the United States, has an area of 46,810 square miles. The capital is Jackson. Mississippi was organized as a Territory April 7, 1798, and admitted as a State December 10, 1817. The population in 1900 was 1,551,270; in June, 1902, as estimated by the government actuary, it was 1,603,000. Populations of the three largest cities in 1900 were: Vicksburg, 14,834; Meridian, 14,050; and Natchez, 12,210.

Agriculture.—The cotton crop of Mississippi for 1902 was approximately 1,350,000 bales. The other principal crops as given by the *Crop Reporter* for 1902 were: Corn, 2,144,225 acres, 24,658,588 bushels, value $15,041,739; oats, 117,419 acres, 1,808,253 bushels, value $922,209; hay, 40,175 acres, 56,245 tons, value $576,711.

Legislation.—A special session of the Mississippi legislature convened on January 7, 1902, and adjourned March 5. Among the laws passed were the following:

A primary election law providing for the nomination by popular vote and in accordance with the regulations of the election law in force at the time, of candidates for congressional, State, district and county offices. In order to be eligible to vote in primaries electors must have voted with their party within two years and must have intended to support its nominated candidates. Only the name of the candidate nominated is to be placed upon the official ballot, and if any candidate not so nominated at a primary election shall be elected to office, his election shall be declared void. Nominations for United States senator are to be held under the same regulations governing nominations of State officers.

To provide for the better enforcement of the existing anti-trust laws, and especially of the drastic anti-trust law of March 12, 1900, it was enacted that proceedings may be brought against illegal trusts in the county where they were formed, or in the county where any law had been violated, or in the county where any of the individual defendants might be found. Witnesses may not be excused from testifying on the ground of self-incrimination, nor shall corporations be excused on that ground from producing their books and records, but such testimony or written evidence shall not be used as a basis for prosecuting those who brought it forward.

A department of insurance was created to attend to all those matters regarding the regulation and supervision of insurance companies which had previously been performed in its different aspects by the secretary of state, auditor of public accounts, and state treasurer. The department was to be managed by a commissioner of insurance, to be elected at the general elections in 1903.

A joint committee of the senate and house was appointed to investigate the reasons for the resignation as treasurer of J. R. Storer on September 6, 1901. As reported by the governor to the legislature, and as a matter of common knowledge at the time, the treasurer's accounts were short more than $100,000 on August 15, 1901, but this sum had been made up by August 20. As a result of the uneasiness which this event caused, the legislature made the bond requirements of State officers much more exacting, the treasurer being required to furnish $250,000.

Constitutional Amendments.—Three constitutional amendments were submitted to the people in November, 1902. The first one permitted any county, city, or town to hold stock in railroads on an affirmative vote of the taxpaying electors of such locality, providing that such investment should not exceed 10 per cent. of the assessed valuation of the property in said locality. This amendment was approved by a majority of 201. A second amendment, providing for a form of referendum upon constitutional amendments, failed of approval. A third amendment, authorizing a regular session of the legislature every two years instead of every four years, was approved by the voters.

State Officers.—For 1902 and 1903: Governor, A. H. Longino (elected for four years, term ending January, 1904); lieutenant-governor, James T. Harrison; secretary of state, J. W. Power; treasurer, Thad B. Lampton; auditor, W. Q. Cole; superintendent of education, H. L. Whitfield; attorney-general, Monroe McClurg; land commissioner, E. H. Nall; revenue agent, Wirt Adams—all Democrats.

Supreme Court for 1902 and 1903: Chief justice until May 3, 1903, when his successor will be appointed by the governor, Albert H. Whitfield; associate justices, S. H. Terral, and S. S. Calhoon—all Democrats.

For Congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

MISSOURI, a west central State of the United States, has an area of 69,415 square miles. The capital is Jefferson City. Missouri was organized as a Territory

December 7, 1812, and admitted as a State August 10, 1821. The population in 1900 was 3,106,665; in June, 1902, as estimated by the government actuary, it was 3,196,000. The populations of the four largest cities in 1900 were: St. Louis, the fourth largest city in the United States, 575,238; Kansas City, 163,752; St. Joseph, 102,979; and Joplin, 26,023.

Finance.—The balance in the treasury on January 1, 1902, was $1,243,130.97. The receipts during 1902, including transfers, were $7,601,009.32. The disbursements during the same year, including transfers, amounted to $6,845,737.58, and the balance on December 31, 1902, to $1,998,402.71, of which $568,741.04 was credited to the State or revenue fund, and $520,204.38 to the State sinking fund. The outstanding debt December 31, 1902, was $487,000, a reduction during the year of the bonded debt by $1,400,000.

Agriculture.—The leading agricultural crops of Missouri for 1902 as given by the *Crop Reporter* were as follows: Corn, 6,775,195 acres, 264,232,605 bushels, value $87,196,760; winter wheat, 2,827,462 acres, 56,266,494 bushels, $32,634,567; oats, 855,822 acres, 27,816,165 bushels, $7,788,526; potatoes, 95,579 acres, 12,234,112 bushels, $4,281,939; hay, 2,698,654 acres, 4,290,860 tons, $29,564,025.

Industries.—There was a remarkable increase in the output of the lead and zinc mines in 1902. Unexpectedly well-sustained prices were the principal cause of the activity. Lead ores from the southeastern part of the State increased from 57,898 tons in 1901 to 74,363 tons in 1902. More zinc ore was mined than ever before. By December 1, 1902, 254,000 tons had been produced—almost equalling the total output of 256,920 tons in 1901. The spelter produced in Missouri and Kansas was, in 1901, 87,353 tons; in 1902, 98,362 tons. Most of the ore came from the Joplin district in Missouri and some from Colorado. Improvements in and about St. Louis, involving the expenditure of $75,000,000, were begun by the Exposition company, the city, and the railroads. The largest bridge under construction in the United States was over the Mississippi River to connect the Missouri Pacific with the Illinois Central Railroad at Thebes, Ill. The following table gives statistics of the leading industries for 1901:

	Total Capital Invested.	Total Value of Goods Manufactured.	Total Number Employees.	Total Amount of Wages Paid.
Packing houses	$2,337,782	$49,057,226	3,881	$2,210,673
Tobacco factories	3,209,251	21,073,849	3,276	1,904,495
Flouring mills	4,274,425	20,192,822	1,906	1,024,453
Liquors, malt	22,839,262	17,278,691	5,150	3,384,133
Boots and shoes	2,183,300	13,265,367	8,224	2,874,149

Railroads.—Including all tracks there were, in 1901, in the State of Missouri, 8,656.26 miles of railroad, represented by a capital of $26,978 per mile, a bonded debt of $24,431 per mile, making a total of $53,414 of capital and bonds per mile of road. There were 54,273,500 passengers carried during the year and 93,309,855 tons of freight were hauled.

Elections.—At the regular election, held November 4, 1902, the only officer voted for was judge of the Supreme Court. The Democratic candidate, Valliant, received 273,081 votes, as against 228,398 for Higbee (Rep.).

Conventions and Platforms.—The Republican State convention, held at Jefferson City on June 24, 1902, indorsed the acts of President Roosevelt at home and abroad; favored him as the ideal candidate for President in 1904; upheld the pending Congressional legislation for the Philippines; opposed trusts and combinations in restraint of trade, and favored legislation both national and State to protect the public from this evil; demanded ballot reform and an investigation into charges against the Democrats of squandering State funds, and declared for local self-government of municipalities and for the granting of municipal franchises only by direct vote of the people. The Democratic State convention, held at St. Joseph on July 22, 1902, reaffirmed the Kansas City platform; favored the suppression of trusts and combinations with a tendency to destroy competition; urged the removal of the duty from trust-made products; denounced the Fowler bill; indorsed Governor Dockery's administration; favored municipal ownership of public utilities, and the decision by the people as to when and how such industries should be taken over; supported the plan for a constitutional amendment to provide for direct legislation by the initiative and referendum; pledged the party to enact arbitration laws and child labor laws; and condemned government by injunction.

Other Events.—Judge John F. Phillips, of the United States District Court of Kansas City on March 25, issued a temporary restraining order against eight railroads, connecting Chicago with Kansas City and Kansas City with St. Louis, on application of Judge William A. Day, counsel for the Interstate Commerce Commission, who asked that the roads be enjoined from deviating from published

schedules. The St. Louis board of health, on February 12, dismissed from public service Dr. Armand Ravold, for permitting to be sold and used antitoxin serum which he knew to be impure, thus being accessory to the deaths of thirteen children from tetanus after inoculation. See LOUISIANA PURCHASE EXPOSITION and MUNICIPAL GOVERNMENT.

State Officers.—For 1902 and 1903: Governor, Alexander M. Dockery, elected for four years, term ending January, 1905; lieutenant-governor, John A. Lee; secretary of state, Sam. B. Cook; treasurer, Robert P. Williams; auditor, Albert O. Allen; attorney-general, E. C. Crow; superintendent of public schools, Wm. T. Carrington; secretary of the board of agriculture, Geo. B. Ellis; superintendent of insurance, Robert G. Yates; commissioner of labor, William Anderson—all Democrats.

Supreme Court for 1902 and 1903: Chief justice, Gavon D. Burgess; associate justices, Theodore Brace, Waltour M. Robinson, William C. Marshall, Leroy B. Valliant, Thomas A. Sherwood (in 1902), James D. Fox (in 1903), James B. Gantt —all Democrats except Robinson, Republican.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

MITCHELL, JOHN, president of the United Mine Workers of America, came into great prominence during 1902 through the large strike in the anthracite coal regions. He was born at Braidwood, Ill., February 4, 1869, and went to school until ten years of age. Thereafter he chiefly educated himself, paying special attention to economic questions. When thirteen years of age he went to work in the coal mines, and in 1885 joined the Knights of Labor. In 1895 he was elected secretary-treasurer of a district organization of the United Mine Workers, in 1897 a national organizer, 1898 a vice-president, and in 1899 president of the organization. As president he led the great strike of 1900 in the bituminous coal regions, and the success of this strike increased greatly the membership in both the bituminous and the anthracite coal regions. Mr. Mitchell was the leader throughout the great coal strike of 1902, an account of which will be found in the article STRIKES.

MONTANA, a northwestern State of the United States, has an area of 147,080 square miles. The capital is Helena. Montana was organized as a Territory, May 26, 1864, and admitted as a State, November 8, 1889. The population in 1900 was 243,329; in June, 1902, as estimated by the government actuary, it was 264,000. In 1900 the populations of the three largest cities were: Butte, 30,470; Great Falls, 14,930; and Helena, 10,770.

Finance.—There was in the treasury of Montana at the beginning of the biennial term ending November 30, 1902, $514,627.16. The receipts of the treasury during the first year of the term were $1,343,838.75 and during the second year $1,454,932.14. The disbursements during the first year of the term were $1,303,779.04 and during the second year $1,412,894.25. There remained on hand November 30, 1902, $596,-724.76. The main items received into the general fund, applicable to the ordinary governmental expenses were: From taxes, $807,800.44; from the inheritance tax, $72,662.59; and from licenses, $310,513.43.

Agriculture.—Although primarily a mining State, agriculture is important. The principal crops under cultivation for 1902, with the yield and value of crops, were given in the *Crop Reporter* as follows: Spring wheat, 90,583 acres, 2,355,158 bushels, value, $1,460,198; oats, 159,154 acres, 6,668,553 bushels, $2,400,679; barley, 17,874 acres, 661,338 bushels, $337,282; potatoes, 11,521 acres, 1,762,713 bushels, $881,356; hay, 313,606 acres, 526,858 tons, $3,972,509.

A unique feature of agriculture in the State is the Montana Cooperative Ranch Company, owning 8440 acres of land in the Sweet Grass Hills, near Shelby, on which are pastured 12,000 to 15,000 sheep besides hogs and Angora goats. The plan upon which the ranch is operated allows the stockholders in the company to place sheep or other stock upon the land with no expense whatever for their care. The land and improvements belong to the company. The dividends from the general business are divided among the stockholders as well as one-half the increase and profits derived from the flocks and herds they individually own. The enterprise has proved very successful, and declared a dividend of 10 per cent. on January 1, 1903.

For production of minerals, see GOLD, SILVER, etc.

Conventions and Platforms.—The Democratic State central committee, at a meeting on September 2, 1902, selected F. A. Heinze, of Butte, for senator. At a State convention held at Helena on September 22 to nominate legislators and county officials, forty-three delegates were chosen to attend the State convention at Bozeman on the following day. United States Senator Clark secured 26 county delegates at that convention, Heinze getting only two. This gave renewed control of the Democratic party in the State to the Clark faction. Heinze then formed a new party, known as the Populist party, with a view to splitting the vote. The Democratic platform at the convention on September 24 declared for the eight-hour law

in Montana. Trusts and the administration's policy in the Philippines were condemned.

The Republican platform declared for Roosevelt for President in 1904; favored a duty on woollen products; demanded protection for American industries, with limited revision of the tariff as proposed by Mr. Roosevelt; indorsed the administration's trust policy; favored a reasonable civil government for the island possessions; and commended the action of the President in enforcing the law against fencing public domain.

Elections.—At the regular election, held November 4, 1902, the only officer voted for was justice of the Supreme Court. Holloway (Rep.) was elected, receiving 31,690 votes, as against 21,204 for Leslie (Dem.), giving the Republican candidate a plurality of 10,486.

State Officers.—For 1902 and 1903: Governor, J. K. Toole (elected for four years, term ending January, 1905); lieutenant-governor, F. G. Higgins; secretary of state, G. M. Hays; treasurer, A. H. Barret; auditor and insurance commissioner, J. H. Calderhead; attorney-general, James Donovan; superintendent of education, W. W. Welch; land registrar, Thomas D. Long—all fusion Democrat-Populists.

Supreme Court for 1902 and 1903: Chief justice, Theodore Brantly; associate justices, William T. Pigott (in 1902), William L. Holloway (in 1903), and George R. Milburn.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

MONTENEGRO, an independent principality in southeastern Europe, constituting one of the Balkan States, has an estimated area of 3630 square miles, and a population of about 230,000. The capital is Cettinje, with 4000 inhabitants, and the largest town, Podgoritza, with 6534 inhabitants. The Montenegrins belong to the Servian branch of the Slav race, and are largely adherents of the Greek orthodox church. The government is patriarchal in form, the executive power being exercised by the native prince, Nicholas I., who succeeded in 1860, and whose will is practically absolute. He is assisted by a council of eight, half of whom are appointed by the prince, and half elected by the male inhabitants, who are bearing, or have borne, arms. The tribal organization still exists for administrative purposes, the entire country being divided into forty districts, corresponding to as many tribes, each governed by elected "elders," and a chief or captain, whose powers are those of a magistrate in peace, and a commander in war. No standing army exists, but all male inhabitants are liable for military service. There has been a regular budget only since 1901, the revenues and expenditures balancing in 1902 at 881,662 florins. The revenue is derived chiefly from customs, land taxes, and monopolies. Montenegro has no coinage of its own, the florin in use being that of Austria, valued at 40.6 cents. The public debt amounts to 960,000 florins. The country is very mountainous, little of it is fit for cultivation, and agricultural methods are of the most primitive kind. The small crops of maize, barley, potatoes, oats, and buckwheat are scarcely more than sufficient to supply the home demand. There are practically no manufactures. The chief occupations of the inhabitants are pastoral, and live stock, hides, dried meats, wool, cheese, beeswax and honey constitute the bulk of the exports, which in 1898 were valued at 1,179,960 florins. The imports in the same year amounted to 1,405,580 florins.

Early in March, 1902, the betrothal was announced of Prince Mirko, the second son of Prince Nicholas, to the daughter of a high Servian official formerly of King Alexander's household.

MONTÉPIN, XAVIER AYMON DE, a French novelist, died April 29, 1902, at Paris. He was born March 18, 1824, in Apremont, in the department of Haute-Saône. In 1848 he founded *Le Canard,* a short-lived political paper characteristic of the time, and contributed to anti-revolutionary journalism, but he soon abandoned politics for literature. A long series of romances came from his pen with amazing rapidity, aggregating nearly a hundred titles, not including numerous plays. The fact that these books must have earned a considerable fortune, is signified by the valuation of 400,000 francs that was placed on his losses when his house was burned in 1881. Some of his more familiar titles, suggestive of their school, and characteristic of his others, are: *Les Chevaliers du lansquenet* (1847); *Les Viveurs d'autrefois* (1848); *Mademoiselle Lucifer* (1852); *L'Officier de fortune* (1857); *Les Marionnettes du Diable* (1861); *La Maison maudite* (1867); *Son Altesse l'amour* (1881); *Trois Millions de dot* (1891). In his plays he collaborated with several authors, particularly M. Alexandre Dumas and M. J. Dornay.

MONTSERRAT. See LEEWARD ISLANDS.

MOODY, WILLIAM HENRY, a Republican congressman, was named on March 10, 1902, as secretary of the navy to succeed John D. Long, resigned, and assumed office on May 1. Secretary Moody was born in Newbury, Mass., December 23, 1853, and

graduated from Phillips Andover Academy in 1872, and from Harvard University in 1876. He studied law after graduation, and his first public office was the small one of solicitor of Haverhill, Mass. He was then appointed United States attorney for the eastern district of Massachusetts, and held this office from 1890 to 1895. In this position he established his reputation for ability and indomitable energy. He was elected to Congress in 1895 to fill the vacancy caused by the death of General Cogswell, and was re-elected to the Fifty-fifth, Fifty-sixth, and Fifty-seventh Congresses. Early in his congressional career he won the special regard of Speaker Reed, who made him a member of the important committee on appropriations. He also served on the committee of insular affairs, and in that connection became greatly interested in naval progress. He has, since assuming office, continued the policy of his immediate predecessors of increasing the size and efficiency of the navy, and has tried to solve the vexed problem of obtaining sufficient officers and men for the vessels.

MOORE, Edward Mott, an American physician, died in Rochester, N. Y., March 3, 1902. He was born in Rahway, N. J., July 15, 1814, studied at the Rensselaer Polytechnic Institute, Troy, N. Y., and graduated in 1838 at the medical school of the University of Pennsylvania. Beginning practice in Rochester, whither his family had removed in 1830, he soon became prominent in his profession; was the first president of the New York State Board of Health, and from 1858 to 1883 was professor of surgery in the Buffalo Medical College. His other official connections included duties as president of the National Surgical Association, the National Medical Association, and of the New York State Medical Society. He made many valuable researches into the action and diseases of the heart, and contributed widely to medical journals. He was actively interested in the municipal government of Rochester and rendered valuable services as president of the park board.

MORAES BARROS, José Prudente de, ex-president of Brazil, died December 3, 1902. He was born in 1841 at Itú, São Paulo, studied law and was admitted to the bar in 1863, and in 1866 was elected to the state legislature. His espousal of republican doctrines in 1870, threatened for a time to doom his political career, but in 1879, with two other republicans, he was elected again to the assembly. He became one of the leaders of the small republican party, and in 1855 was elected to the national legislature, being the first republican to gain admission. In 1889, after the deposition of Dom Pedro, he was appointed governor of São Paulo, and immediately afterward was elected senator. He became president of the constitutional assembly, was defeated for president of the new republic in 1891, but in 1894, when the rebellion was at its height, was elected by a majority which won an overwhelming victory over the military party. He was forced to retire in November, 1896, but was re-elected in 1897. In 1898 he was defeated for the presidency by Campos Salles.

MORAVIAN CHURCH, or UNITAS FRATRUM, founded in 1457, thus claiming the distinction of being the first Protestant Episcopal Church, though it apparently became extinct through persecution, but reappeared in 1727. The church embraces three provinces, the American, European, and British, including 39,323 members, and many missions, in which are 464 missionaries and 96,833 members, 92,075 of whom are communicants. In the United States and Canada there are 129 ministers and 117 churches, and 15,773 communicants, an increase of 548 during 1902. The number of members is 23,896. The European province has 7772 members and the British province 6058; the Bohemian mission, 726. The bishops of the church number 26, of whom 6 are in the American province. Several new churches were erected during the past year in the American province, and the work was extended in Alberta, Canada, in northwestern United States, and in North Carolina. The Moravian Church is noted especially for its missionary and educational activities. It entered upon mission work in 1732, and since that date has established organized stations in various parts of the world, besides *diaspora* missions. The entire cost of mission work during the past year was $442,803, exclusive of the income ($68,554) of the Morton Legacy, which was devoted to new stations. In Jerusalem, the Moravians maintain a leper hospital and they are laboring also among the lepers in South America. The educational institutions of the American province comprise a college and theological seminary in Bethlehem, Pa., and schools at Nazareth, Bethlehem, and Lititz, Pa., and at Salem, N. C. About 500 students are enrolled. There is a theological seminary for the education of native ministers in the West Indies; also various institutions in Europe. Among a number of periodicals representing the church is the *Moravian*, issued weekly at Bethlehem, Pa., where the publication office of the American province is located. A fund of $50,000 has been created, the interest of which is used for the erection of new churches, and several other funds are applied to special fields of denominational activity. During 1902 an important meeting of the presiding board of the entire church was held in Germany, representatives from the various provinces being in

attendance. In 1903 will be held a provincial synod of the northern province of the United States, that of the southern province having convened last year.

MORGAN, THOMAS J., a Baptist clergyman, died July 13, 1902, at Ossining, N. Y. He was born August 17, 1839, in Franklin, Ind., studied at Franklin College, but, without finishing his course, enlisted in the Seventh Indiana Volunteers at the beginning of the Civil War. In 1862 he became a lieutenant in the Seventieth Indiana Volunteers. Before the end of the war he rose to the command of a brigade as brevet brigadier-general. In 1868 he graduated at the Rochester Theological Seminary. From 1874 until 1881 he was professor of church history at the Baptist Theological Seminary in Chicago, from 1884 to 1889 president of the Normal School of Providence, R. I., and from 1889 to 1893 a United States Indian commissioner. In 1893 he became corresponding secretary of the American Baptist Home Mission Society, a capacity in which he served until his death. He edited the *Home Mission Monthly,* and published *Studies in Pedagogy* (1888); *Patriotic Citizenship* (1895); and *The Negro in America* (1900).

MORMONS, or LATTER DAY SAINTS, a Christian sect organized in 1830 by Joseph Smith, the prophet of Mormonism, and the author of the *Book of Mormon,* which purports to be a divinely revealed history of ancient America. After the death of the prophet in 1844, there were several schisms, the main body of the Mormons following the leadership of Brigham Young, while a considerable number held that the rightful successor of Joseph Smith was his eldest son. The latter division, sometimes called non-polygamous Mormons, for they deny the authenticity of the revelation on polygamy made public in 1852, claims to represent the true principles of the church, and to be the "lawful continuation of and successor to the original Church of Jesus Christ of Latter Day Saints." Reorganization was effected in 1853, and in 1860 Joseph Smith, the son of the prophet, became president.

Church of Jesus Christ of Latter Day Saints now includes 50 "stakes of Zion," more than half of which are in the State of Utah, and 20 missions, having an approximate membership of 350,000. During the year there were organized within the "stakes" 15 new wards. The priesthood of the church numbers 62,445, the lesser or Aaronic order comprising 25,700 bishops, priests, teachers, and deacons. The whole body of priesthood is divided into foreign and home ministries. The former consists of the twelve apostles and the quorums of seventy (143), making in all some 10,000 persons who are engaged in the propaganda of Mormonism. In addition to the regular church organization, there are a number of auxiliary bodies with a total membership of 204,150. Quarterly conferences are held in each "stake," and general conferences of the church, semi-annually in April and October. Considerable attention was attracted in 1902 to the success of the Mormon missions in the United States. In the foreign fields, too, there were gains, notably in Denmark, Germany, and Switzerland, the dedication of a temple in Copenhagen having been one of the features of the year. The *Deseret News,* issued daily and semi-weekly at Salt Lake City, is the official organ of the church. President, Joseph F. Smith; first and second counsellors in the first presidency, John R. Winder and Anthon H. Lund.

Reorganized Church of Jesus Christ of Latter Day Saints, with headquarters at Lamoni, Ia., comprises two "stakes of Zion" (Lamoni, Ia., and Independence, Mo.), besides mission and district conferences, the church being represented in the United States and Canada, Great Britain, Scandinavia, Australia, and in the Society and Sandwich Islands. It has 650 local organizations, about 800 ministers, and 55,500 members. There are more than 200 church edifices, and the value of church property is estimated at $800,000. Graceland College, at Lamoni, is under the auspices of the Reorganized Church; and publishing houses are maintained in Lamoni and Independence, the official organ, the *Saints' Herald,* being issued weekly in Lamoni. The annual world's conference in 1902 was held in Lamoni, April 6-21. President, Joseph Smith; secretary, R. S. Salyards; patriarch, A. H. Smith; bishop, E. L. Kelley.

MOROCCO, a Mohammedan empire in northwestern Africa. The capital is Fez, but Morocco City (Marakesh) and Mekines are also residences of the sultan.

Area and Population.—The area of Morocco cannot be closely estimated since the southern boundaries are undefined, but the figure usually accepted is 219,000 square miles. The population is still less definitely known; 4,000,000, perhaps, is a fairly approximate estimate. Fez has about 140,000 inhabitants. The people of Morocco belong to the Malekite sect of the Sunnite Mohammedans.

Government, etc.—Morocco is an absolute monarchy, the sultan being the supreme authority in matters both civil and religious. His real power, however, depends largely upon circumstance and his own character. He is assisted by six ministers of state, who theoretically are only the executive of his unrestricted will. The sultan in 1902 was Mulai-Abd-el-Aziz, who was born in February, 1878, and succeeded his father in June, 1894. He did not come into real power, however, until the death

of the grand vizier, Sid Ahmed Ben Musa, in May, 1900. In 1902 the grand vizier was Sid Emfadi Gharnit; minister for foreign affairs, Sid Abdelcrim Ben Sliman; commissioner for foreign affairs at the port of Tangier, Sid Hadji Mohammed Torres; instructor-in-chief (of the army), Kaid Sir Harry Maclean. Representatives of fourteen nations reside at Tangier. The regular army comprises about 10,000 infantry and 400 cavalry; in addition there are some 2000 irregular cavalry, and militia forces, foot and horse, numbering about 18,000. The annual revenue of the sultan, derived largely from monopolies, taxes, and extortion, is estimated at about $2,400,000.

Industries and Commerce.—Agriculture and the rearing of live-stock are the leading industries. There is a limited manufacture of carpets and slippers. The mineral resources are undeveloped. The principal crops include cereals, pulse, fruit, esparto, and hemp. Imports and exports in 1900 were reported at $7,925,200 and $8,675,500 respectively; in 1901, $8,465,340 and $6,434,978 respectively. The principal imports are cotton goods and other textiles, sugar and provisions, and iron, steel, and brass ware. The values of the leading exports in 1901 were stated as follows: Eggs, $891,548; beans, $715,049; oil, $681,743; pease, $470,819; oxen, $312,775; almonds, $286,282; carpets, slippers, skins, and hides, $1,100,244. About half of the foreign trade is with Great Britain.

History.—In 1902 the progressive policy of the young sultan led to disaster. It will be remembered that after the death of Sid Ahmed Ben Musa, the sultan began to introduce various reforms,—among others, for a more just taxation, for the betterment of prisons, and for the amelioration of oppressive customs tariffs. Undoubtedly he was actuated by a sincere desire to benefit his subjects, but they, bound by the tradition of centuries, distrusted him. He gave an unusual amount of attention, for a Moslem ruler, to European affairs, and especially took an active interest in various articles of European manufacture, such as bicycles, automobiles, and cameras, all of which aroused in his subjects a very real antagonism. Moreover, he violated Mussulman tradition by seeking to protect Christians and to place foreigners on an equal footing of safety with Moors. In October, 1902, Dr. David J. Cooper, an English missionary, was murdered by a Moor in Fez. Although the culprit took refuge in a mosque, he was arrested and shot by order of the sultan. This brought about the culmination of discontent. Already there had been tribal uprisings in 1902 (in northern Morocco), and in September a rather serious outbreak had been suppressed. Conditions were now ripe for a really formidable rebellion, and a leader was forthcoming in the person of Omar of Zarahun, known as Bu Hamara, "the Father of the She Ass." Omar, it was said, was a man of middle age and had once been a soldier in the Moorish army. Later he had gone to Tunis and Algeria, where he had acquired some education, and returning to Morocco had set up as a religious teacher and precursor of a Mahdi. Astride a white ass and professing lowliness of heart, he gained power over the simple-minded tribesmen and finally succeeded in passing himself off as the elder brother of the sultan, Mulai Mohammed. The latter had been imprisoned at Mekines for disputing the throne upon the death of his father. Thus in the eyes of the tribesmen Bu Hamara represented not only a worthy political cause, but the true religion itself. On October 25 he and his followers arrived at Tesa, near Mekines, and on November 3 they were defeated by the imperial troops, whereupon the pretender fled to the mountains of Ghiata. (About this time the Benider Kabyles near Tetuan rebelled, but were quickly subdued by the governor of Tetuan.) The sultan led a force against the Berber tribes in the Zimmur country, and on November 10 marched to Mekines. Reports were then made that the insurrectionary movement of the pretender was ended and was causing no more anxiety. But on the 29th the forces under the sultan's brother, Mulai el Kebir, were defeated by the pretender at Tesa, and the sultan withdrew to Fez, which he entered on December 9. The jehad of Bu Hamara, or holy war against Christians and for the overthrow of the sultan on account of his European tendencies, now increased in strength, and by December 20 the pretender's forces were estimated to number 30,000. Another imperial expedition was made against Bu Hamara, and on December 23-24 a battle was fought at Tesa, in which the government troops suffered a crushing defeat. About 2000 of them, it was reported, were killed, and the remainder, leaving their artillery, tents, money, and many rifles and much ammunition, fled in confusion to Fez. The pretender then started to march on Fez, where at the end of the year the sultan and his supporters were shut up. On December 31, 1902, Kaid Sir Harry Maclean, instructor-in-chief of the army, arrived at Tangier from England and proceeded up country.

The insurrection concerned not only Morocco itself, but several European nations. Spain has traditionally certain rights in the event of a break-up of Morocco, and France not only desires such a break-up but doubtless wants the lion's share of the country for herself. Indeed, a French writer has declared that the question of the acquisition of Morocco is a question of life or death to Algeria. There is little

real indication of a change in the forward policy of France, though certain understandings as to boundary were arrived at with Morocco in 1902; but it should be pointed out that in January of that year France and Italy appeared to have come to an understanding whereby Italy would support France in the exploitation of Morocco, and France would play a similar rôle in the interest of Italy's designs upon Tripoli.

MORRIS, Philip Richard, an English historical painter, died in Maida-vale, London, April 22, 1902. He was born December 4, 1838, in Devonport, England, studied in the British Museum under Holman Hunt, and in the Royal Academy. In 1855 he won a silver medal of the Academy for the best drawing from life, and in 1858 a gold medal for the best historical painting, "The Good Samaritan." At the Antwerp Exhibition, soon afterward, he was awarded the second-class medal. In 1877 he was made an associate of the Royal Academy. He was considered one of the most promising of the coming men at that time, but he had probably already reached his zenith. His subject pictures, and pretty portraits of women and children, never lacked the warmest admirers. He was on the roll of retired honorary members of the Royal Academy, and had exhibited nothing for the last few years. It was only after a struggle with adverse circumstances in early life that he became an artist, and it is thought that the severe labor of those years told on his vitality.

MORTON, Henry, president of Stevens Institute of Technology. died in New York City, May 9, 1902. He was born in New York City, December 11, 1836, and was educated at the Episcopal Academy of Philadelphia and at the University of Pennsylvania, from which he graduated in 1857. While an undergraduate he distinguished himself by making a translation of the Rosetta Stone and by preparing an illuminated manuscript, which later he reproduced by lithographing. After attempting the study of law, he devoted himself to the physical sciences, for which he had a decided aptitude, and became connected with his old preparatory school as a lecturer. In 1863 he became professor of chemistry in the Philadelphia Dental College and in the following year secretary of the Franklin Institute. At this time public lectures with experiments were in high favor, and many of the most celebrated scientists endeavored to popularize science from the lecture platform. Of these Morton was among the first, and his success added greatly to his reputation, which had rapidly grown through his able editing of the *Journal of the Franklin Institute*. In 1868 the temporary absence of the professor of chemistry and physics at the University of Pennsylvania gave Morton the opportunity to carry on the work in this department, and so successful was he that in the following year he was made a regular member of the faculty and assigned a chair of chemistry. While here he carried on important photographic and other studies, and participated in the work of the United States Solar Eclipse Expedition. In 1870 he was invited to become the head of "an institute of learning" made possible by bequests of Edwin A. Stevens of Hoboken. The trustees accepted Prof. Morton's suggestion that the most advantageous use of the endowment would be the foundation of a school of mechanical engineering, and in 1871 Stevens Institute of Technology was founded and its work begun. Surrounded by a carefully chosen faculty and with the greatest attention to all details connected with its administrative and educational development, Professor Morton soon placed Stevens Institute in the front rank of American scientific schools. He was also a liberal benefactor to the Institute, and gave to it a new workshop (1880), besides organizing at his own expense departments of applied electricity (1883), and engineering practice. It has been stated that these and other gifts to the institution aggregated about $150,000. President Morton was in constant demand as a scientific expert in litigation and consultation, and in 1878 succeeded Joseph Henry as a member of the United State Lighthouse Board. His best-known chemical researches were concerned in the study of fluorescence, and the absorption spectra of uranium salts and other substances, and he was the discoverer of "thallene," and its modification "petrolucene." He was chosen a member of the National Academy in 1873, and held honorary degrees from Princeton and the University of Pennsylvania, and was a member of many learned and scientific societies both in the United States and Europe. He was succeeded as president of Stevens by Alexander C. Humphreys (*q.v.*).

MORTON, Julius Sterling, secretary of Agriculture during Mr. Cleveland's second administration, died at Lake Forest, Ill., April 28, 1902. He was born at Adams, Jefferson County, N. Y., April 22, 1832. He attended school in Albion, Mich., where his family had removed, and entered the University of Michigan. He left without completing his course, and went to Union College, from which he graduated in 1854. During the same year he married and took up his residence in Nebraska City, where he engaged in farming. He became editor of the *Nebraska News*, the first newspaper of that region, was elected to the territorial legislature the year after his arrival, and was re-elected in 1857. In 1858 he was elected secretary of the

Territory. A few months later, by resignation of Governor Richardson, he became acting governor. The minority of the Democratic party in Nebraska foredoomed his political success locally, but he was barely defeated as delegate to Congress in 1860, and received three nominations for governor. His activity in politics, nevertheless, continued. He was bitter in his opposition to free silver and to protection, did much to encourage forestry in Nebraska, and as secretary of agriculture in President Cleveland's second administration, was conspicuously successful in cutting down useless expenditures, and by securing from Congress an appropriation for the issuing of practical farmers' bulletins. He was a prominent member and president of the Nebraska State Board of Agriculture, and was the originator of Arbor Day, now celebrated throughout the country. He founded the *Conservative*, a weekly journal, in opposition to free silver, and for the advocacy of what he deemed sound political doctrines.

MOSELY COMMISSION. See GREAT BRITAIN (paragraph Mosely Commission).

MOSQUITOES. See ENTOMOLOGY and INSECTS AND THE PROPAGATION OF DISEASES.

MUNICIPAL GOVERNMENT. There are in the United States about 140 cities, each having a population of 30,000 or more. No two of these cities make their annual financial statements in the same form, so it is practically impossible to make any accurate comparisons of receipts, expenditures, tax rates, municipal assets and liabilities, or any other matters of importance. The United States Department of Labor since 1899 has attempted to compile statistics of cities for purposes of comparison. In order to make these statistics of any value, it was necessary to gain the cooperation of municipal officers and induce them to put the official records into something approaching uniformity. This work of the department has been of very great importance in forcing upon the attention of municipal officers and voters the necessity for a uniform system of accounting, and the movement in this direction steadily gained strength during 1902.

Minneapolis.—The official debauchery in Minneapolis from the inauguration of the Ames administration, January 7, 1901, until the overthrow of that system of organized official vice in 1902, is incredible. The following statement is based mainly on the account of Mr. Lincoln Steffens, who published the result of his personal investigations in *McClure's Magazine*. Dr. Albert A. Ames had served three terms previously as mayor of the city—twice elected by the Democrats and once by the Republicans. The Minnesota primary law of 1900 provided for direct nominations by the people, but did not prevent voters of one party from voting to nominate the candidates on the other party's ticket. At the primaries held in 1900, Ames, who was for the time being a Democrat, instructed his followers to nominate him for mayor on the Republican ticket. This was done, much to the chagrin of the Republicans and the delight of the Democratic leaders, who thought they could easily defeat him. But through the partisanship of the voters and the popularity of Ames, who had a strong personal following of gamblers, thugs, saloon-keepers and "good fellows" generally, he was elected. Immediately after his election, and before his inauguration, he gathered together a body of fellow rascals, and laid plans to "open" the city to outlaws who were to work under police direction for the profit of the administration. On assuming office, he appointed as chief-of-police his brother, Col. Fred W. Ames, and made Norman W. King, an ex-gambler, chief of detectives. King's chief function was to invite to Minneapolis thieves, gamblers, pickpockets, confidence men, and all kinds of criminals, and arrange with them the division of the spoils of their trades. Prisoners in the city jails were let loose upon the city as an additional force of revenue collectors for the gang. The outlaws were organized into groups, according to profession, and detectives were assigned to assist and protect them. Irwin A. Gardner, a medical student in "Doc" Ames's office, was made special policeman for the sole purpose of collecting money from the common women of the town. One hundred and seven of the more decent among the 225 men on the police force were dismissed, and "Coffee John" Fitchette was made a "captain," whose sole duty was to sell places on the force. Ames and his able assistant, Gardner, "reformed" the municipal system of vice protection, diverting the monthly "fines" formerly paid by prostitutes to the city court into the mayor's own pocket. On good authority it was stated that the police officials urged criminals to rob the people, offering them protection and aid in securing victims.

Ames never was a good organizer, and, after a time, members of the official gang became jealous of each other, and the "system" began to disintegrate. In April, 1902, the grand jury met with Hovey C. Clarke as foreman. To him belongs the honor of breaking up the Ames gang. He had first to bring over the grand jury to his way of thinking. The district attorney refused to lend his aid. Mr. Clarke hired detectives at his own expense to collect evidence against the gang, and him-

self persuaded some of the "grafters" to turn State's evidence. He was offered $28,000 to quit, and on his refusal plans were made to murder him, but he was not to be bribed or scared. As the public prosecutor was a servant of the gang rather than of the people, his first assistant, A. J. Smith, was persuaded by Mr. Clarke to take up the fight. Once in the fight, Smith did noble service, winning every case in spite of all the gang's opposition. The grand jury indicted Gardner, King, Norbeck, Fred Ames, and many lesser personages. The county had no money, so the grand jurors contributed freely to bring witnesses from other States. One important witness—a gambling dive victim—was followed from Michigan to Mexico and back to Idaho by the agent of the grand jury before they got him. The first trial of Fred Ames failed. The mayor himself was then indicted, in order to frighten the supporters of the system into some confession. The move succeeded, and on a second trial Fred Ames was convicted and sentenced to six and one-half years in the penitentiary; Norbeck was sentenced to three years, and King to three and a half years. The rottenness revealed was appalling. Two heads of departments who had escaped indictment ran away, leaving behind the evidences of their complicity in a system for defrauding the public in the sale of supplies to public institutions and the diversion of large quantities of provisions to the private residences of the mayor and other officials. Mayor Ames, under indictment and heavy bonds for extortion, conspiracy, and bribe-offering, fled to Indiana. For a time the city was without a head, until Alderman D. Percy Jones could return and exercise the duties of the mayor's office. Under his vigorous administration matters greatly improved. On November 4, a straight Republican ticket of city officials was elected except that, for mayor, James C. Haynes, Democrat, was chosen, by a majority of some 6000 over Fred. M. Powers, Republican, who was suspected of being too intimate with the gang.

St. Louis.—Bad as the conditions were in Minneapolis, those brought to light in St. Louis by the grand juries of February and October were far worse; for while the corruption in the former city sprang mainly from an alliance between the government and the smaller criminals, in St. Louis it extended further, involving men spoken of as "influential" and "respected" citizens, who had obtained franchises by bribery and preyed upon the entire community. The following account, like that of Minneapolis, is based on the investigations of Mr. Lincoln Steffens, the results of which were published in *McClure's Magazine*. Col. Edward R. Butler, an Irishman by birth and a horseshoer by trade, organized the system for blackmailing public utility corporations in St. Louis, developed it into a regular financial institution, and made it an integral part of the business community. He was at first the "boss" of the Democratic machine. Later he controlled the municipal assembly through the worst elements of both parties. He dictated nominations on both the Republican and the Democratic tickets, and secured the election of his creatures by wholesale repeating and fraudulent counting. It is said that sometimes he bought or rented the mayor, but oftener owned a two-thirds majority in each of the two houses of the municipal assembly, and could secure what he wanted without the mayor's concurrence. He demanded money from every applicant for a franchise, and only when the cash was paid down did he instruct his creatures to pass the measure through. No slightest concession, however legitimate, could be secured without heavy payments as blackmail. Every transportation and public conveyance company touching St. Louis had dealings with Butler. Citizens who asked leave to excavate in the streets for any purpose, neighborhoods that needed new street lamps or other necessary improvements, had to pay to get what they wanted. From 1898 on, wholesale bribery is said to have marked the administration of the municipal council, whose members came in time to deal with the capitalists instead of through the medium of Butler. The ensuing struggle between them for the largest share of the plunder is the most discouraging chapter in all the dismal history of municipal misgovernment in America. The Central Traction deal in 1898 was among the worst examples of bribery on record. Robert M. Snyder, a capitalist and promoter of New York, later a resident of Kansas City, asked for a franchise to lay tracks all over the city, regardless of existing tracks. The street railways of course opposed the new scheme, and finally through Butler offered $175,000 to the municipal council for the defeat of the measure. Snyder bought individual councilmen, paying in all $250,000, and secured the railway franchise. His next move was to sell it to his opponents, the street railway companies, for $1,250,000. It was worth twice that amount. Councilman Frederick G. Uthoff received $25,000 from one of Butler's creatures, and was afterwards offered $50,000 by Snyder, but returned the bribe, saying that he could not accept it because he was already bought, at the same time intimating that he could be prevailed upon to accept $100,000. Snyder promised this, so Uthoff voted for the franchise. Then he returned Butler's $25,000, because, as he said to the grand jury, he "hadn't earned it." When he appealed to Snyder for the promised $100,000, Snyder turned him off with a paltry $5000, taking by way

of receipt a signed statement that the reports of bribery were utterly false; that "I [Uthoff] know you [Snyder] to be as far above offering a bribe as I am of taking one."

In 1899 the electric lighting deal was carried through, by which Butler received $150,000 from the company and paid out only $85,000—$47,500 to members of the house and $37,500 to members of the council. At first Butler asserted that he had only $20,000 to divide among the members of the house combine, but they suspected him of lying and hung the measure up. Meanwhile the city lay in darkness for weeks, while the blackmailing syndicate haggled about the price of the job with the incorporated bribers and franchise grabbers. Citizens who went to Mayor Ziegenhein with complaints were told by him to go to the moon for light. The furious citizens at length went with ropes to the city hall and demanded some provision for light. Under this pressure Butler weakened and promised the boodlers $47,500, and the measure was passed. The next big measure was the Suburban Traction deal in 1899. Butler demanded $145,000 from the St. Louis Suburban Railway Company for putting through the franchise they asked. This seemed too much, and the company got the measure through without Butler's assistance, but it cost them $144,000, and, before the money was paid over and the company in possession of the franchise, an injunction put a stop to the job. The money was in safe deposit vaults; and a long fight for it was made. The company refused to pay over the money, because they had received no franchise; the boodlers clamored for the money because, as they claimed, it was no fault of theirs that the franchise was not delivered, inasmuch as they had fulfilled their part of the deal. It was the attempt of the blackmailers to invoke legal aid to collect the bribe money that led to their undoing.

The event which put a stop to this systematized robbery was the election of Joseph W. Folk as circuit attorney for the Fourth district. Mr. Folk refused to have any understanding with the gang, and immediately on taking office, April 9, 1901, began the prosecution of repeaters, bribers, and ward heelers of both parties, regardless of protests from the leaders of his own party. When his attention was called to a paragraph in the papers stating that a large sum of money had been placed in bank for bribing assemblymen to pass a street railway franchise, he immediately subpœnaed to appear before the grand jury nearly 100 persons, including councilmen, delegates, officers and directors of the Suburban Railway, bank presidents and cashiers, and began the most vigorous investigation that St. Louis ever experienced. Charles H. Turner, president of the Suburban Railway, and Philip Stocke, brewer and briber, turned State's evidence and told the whole story of that deal, implicating three aldermen for taking bribes and two millionaires and directors of the Suburban Railway Company for giving bribes, and two aldermen for perjury. The most discouraging feature in all this was the indifferent or positively unfriendly attitude of the "better element" toward Mr. Folk and his work. Butler himself was indicted for bribe-giving. John J. Murrell, one of the indicted assemblymen, weakened and ran away to Mexico. When Mr. Folk secured the conviction of the first boodler up for trial, the ring broke and several other prominent politicians and millionaires suddenly left the State, to return only when the crimes of which they were suspected had become outlawed by the Missouri statute of limitations. Later on Mr. Folk induced Murrell to return and tell his story, and, with the aid of this and other new evidence, he indicted all the rest of the gang, sixteen men at one stroke. The February grand jury thus characterized the members of the St. Louis house of delegates: "We found a number of these utterly illiterate and lacking in ordinary intelligence, unable to give a better reason for favoring or opposing a measure than a desire to act with the majority. In some no trace of mentality or morality could be found; in others a low order of training appeared united with a base cunning, groveling instincts, and sordid desires. Unqualified to respond to the ordinary requirements of life, they are utterly incapable of comprehending the significance of an ordinance, and are incapacitated, both by nature and training, to be the makers of laws. The choosing of such men to be legislators makes a travesty of justice, sets a premium on incompetency, and deliberately poisons the very source of the laws." Out of fifteen cases brought to trial during 1902, Mr. Folk lost but one, and that on a mere technicality. Yet all the convicts were at liberty at the end of the year. In the house of delegates three convicts, under sentences varying from two to eight years, held their seats and helped to vote down an appropriation to enable Mr. Folk to go on with his investigation. Many of his worst offenders and most valuable witnesses escaped to foreign countries. Butler himself was convicted of bribery and sentenced to three years' imprisonment; but in the 1902 campaign he dictated the nominations on both the Republican and Democratic tickets as usual, and sent his repeaters to the polling places in van-loads.

It is said that the boodlers planned to sell the Union market, and made the marketmen pay $10,000 to withdraw the scheme. They even contemplated selling the

courthouse, and gave it up only when they discovered that the ground on which this public building stands was given to the city on condition that it be used for no other purpose. Some of the boldest of the gang even conceived the brilliant idea of selling the waterworks, which are worth at least $40,000,000, but which the boodlers thought they could sell for $15,000,000. It is estimated that in the four years of boodling in St. Louis the organized thieves sold $50,000,000 worth of franchises and other valuable municipal assets for which the city received not one cent, and they themselves got no more than one-tenth of the value. Some of the gang have said that all the possessions of the city were listed for future sale, and boasted that it would be done when Mr. Folk is out of the way.

New York City.—The cleaning up of New York City by the reform administration inaugurated on January 1, 1902, has been accompanied by none of the sensational features attending the regeneration of Minneapolis, or the exposures in St. Louis. In the metropolis, the "powers that prey" are so closely organized and have so perfected their operations that it has proved impossible to break up the "system" entirely. However, important reforms were steadily and quietly worked out, the civil service law was more efficiently carried into effect, better methods of book-keeping and accounting were introduced, and great economies were effected in all departments, by getting rid of useless employees, reducing overlarge salaries, securing better employees, and stopping up the "leaks" generally, which were so conspicuous a feature under Tammany rule. The department of finance, under Comptroller Edward M. Grout, was especially active and introduced many important reforms in the management of the city's finances and especially to bring about uniformity in accounting. Bird S. Coler, when comptroller, announced publicly that the systematization of the city's accounting would save the city of New York $25,000,000 annually. The Merchants' Association, in conjunction with the Chamber of Commerce, took up this work of reforming and systematizing the accounting of the city. At Mayor Low's instigation the assessment of real estate for purposes of taxation was raised to the full face value with the intention of increasing the city's borrowing capacity, and equalizing the burdens of taxation (see TAXATION). The one conspicuous failure of the reform administration was shown in the police department. It was evident throughout the year that Police Commissioner Partridge was unable to cope with the situation. Blackmail and corruption and lax enforcement of the excise law were constantly charged against the police force, and the gentle methods of the commissioner in dealing with the blackmailers and criminals on the force did not meet with general approval. The popular demand for his removal and the appointment of a younger and more vigorous man finally led to his resignation and the appointment of Gen. Francis V. Greene as his successor, taking effect January 1, 1903. The belief was current that General Greene would clean up the department and carry into visible effect the very important reforms begun under Commissioner Partridge, but which for various reasons could not be consummated under that officer. The work of the Rapid Transit Commission was of tremendous importance during 1902, in the way of systematizing and extending the underground railway system and co-ordinating it with the elevated and surface lines. The commissioner of bridges, Gustav Lindenthal, devised plans for relieving the terrible congestion of traffic at the Manhattan end of the Brooklyn Bridge during the rush hours. The street cleaning department, under the direction of J. M. Woodbury, was made very much more efficient. The Tenement House Commission did excellent service in carrying out the provisions of the tenement house law, effecting great improvements in the construction of tenement buildings, and promising still further improvements under the efficient direction of Commissioner Robert W. De Forest. The contractors and owners of cheap tenements were filled with wrath against the law, but more especially against its very efficient and impartial enforcement, and promised to exert every effort to secure the repeal of the really valuable provisions at the meeting of the legislature in January, 1903. The commission and all interested in the securing of more decent conditions in the overcrowded tenement districts of the city were preparing at the close of 1902 to make a strong open fight to preserve the present law from emasculation, and to improve it in some minor particulars. The reforms accomplished by the health department under Commissioner Lederle were spoken of by ex-Mayor Hewitt as the most "conspicuous example of municipal reform which has ever come to my knowledge." Fully 157 useless or incompetent employees were discharged and the expenses for supplies were cut down about 50 per cent., while the efficiency and scope of the work were greatly increased.

Chicago.—A few years ago the Chicago city government was a byword for corruption, but in 1902 the newspapers of the city boasted of its purity and honesty. In 1901 Chicago paid $65,000 to a firm of expert accountants for putting the accounting system of the city into comprehensible and business-like shape, and the new system which went into effect on January 1, 1902, will, it is estimated, save $50,000

a year to the city. Uniformity and centralization are the features of the new system. Regular forms are prescribed for all returns, and all collections and disbursements are made through the collector and the comptroller, respectively. Early in the year it became evident that the finances of Chicago were in a deplorable condition. Because of the constitutional and charter limitations upon the taxing powers of the city, revenues fell far below expenditures, and the most necessary work had to be dropped. Even the ordinary expenses of policing could not be paid, and many policement were forced either to serve without pay, or change their occupation.

At the municipal elections held April 1, 1902, the Municipal Voters' League and the Chicago Civic Federation won a substantial victory for clean government. Most of the candidates recommended by the League were elected; four out of the eight supposedly hopeless wards were carried by the reformers; and the new council has 55 members pledged to oppose franchise grabbing and partisan scheming, while only 15 members have not given a satisfactory bond. At the same election an expression of public opinion was taken on the question of municipal ownership of public utilities and a vote of 124,000 to 19,000 was cast in favor of municipal ownership of gas and electric lighting plants, and a vote of 125,000 to 26,000 for municipal ownership and operation of street railways. There was much disagreement as to the significance of this expression of opinion. On the one hand it was said to have no meaning, because so few voters had taken enough interest in the proposition to vote upon it; on the other hand it was asserted that it had great significance because the companies possessing franchises would naturally marshal their full strength against the proposition, and the failure to secure more than 26,000 votes from a population of 1,700,000 shows a strong sentiment in favor of public ownership.

Boston.—When P. A. Collins became mayor of Boston in 1902, he ordered an investigation into the accounts of the various city departments, for the purpose of learning why the tax rate of Boston was so high. After investigation, Mr. Harvey S. Chase, public accountant and auditor, reported that the expenditures per capita of Boston were 18½ per cent. higher than of New York City and 172 per cent. higher than the average of ten other cities—Chicago, Philadelphia, St. Louis, Baltimore, Cleveland, Buffalo, Milwaukee, Providence, Indianapolis, and Kansas City, Mo. The running expenses (exclusive of permanent construction) per capita of Boston were $34.07, or 8 per cent. above New York, and 145 per cent. in excess of the average for the ten cities. The following table gives the total itemized expenditures per capita of Boston, of New York, and of the ten cities averaged:

Items.	Boston.	New York.	Average of Ten Cities.
Interest and sinking fund	$8.24	$4.30	$2.20
Streets	7.21	2.52	1.48
Schools	7.05	6.24	3.64
Police, courts, etc	5.27	3.57	2.31
Sewers	3.00	.42	.58
Waterworks	2.96	2.20	1.48
Hospitals	2.30	1.54	.33
Fire	2.20	1.58	1.14
Parks and gardens	1.43	1.27	.57
Ferries and bridges	1.36	.30	.17
Municipal lighting	1.30	.77	.73
Garbage removal	1.09	.33	.33
Street cleaning and watering	.92	1.30	.37
Libraries, museums, etc	.55	.54	.17
Health, baths, cemeteries, and markets	.54	.35	.18
All others	4.41	14.81	2.62
Total	$49.83	$42.04	$18.30

Regarding the municipal printing plant established in 1897, it was found that the plant had been running at a loss amounting in all to $40,000. Gross inefficiency, extravagance, and dishonesty were disclosed by the investigation.

The report on the city tax collection department showed a high percentage of uncollected and practically uncollectable taxes, but revealed no dishonesty or inefficiency in the conduct of that department. The percentage of arrearages has decreased slightly since 1899. In the street department it was shown that while for the period 1895 to 1901, population had increased 15½ per cent. and wealth 21 per cent., expenditures in the divisions of the street department had increased as follows: Central office, 29 per cent.; bridges, 39 per cent.; Cambridge bridges, 44 per cent.; ferries, 14 per cent.; paving, 38 per cent.; sanitary, 36 per cent.; sewer, 20 per cent.; street cleaning, 16 per cent.; street watering, 110 per cent. M. Chase reported that the municipal ferries had been run at a total loss since 1858 of $3,195,445.25, or an average loss of $72,624 a year. For the past ten years the loss has been $102,164 a year, and since 1899, $151,288 a year. Many urged that the ferries

should be made free, in order to build up East Boston, arguing that the increase in taxes from that part of the city would more than make up the added expense of the ferries. Mr. Chase showed that, while the expense of maintaining the ferries had continually increased at a rather alarming rate, the proportion of taxes collected from East Boston continually declined; and he recommended that ferry tolls be increased so as to put the service upon a self-supporting basis. The recommendations of Mr. Chase for uniform and systematic accounting were favorably acted upon as far as possible during 1902.

Other Cities.—Advocates of municipal ownership of public service utilities in San Francisco have worked long and hard to carry their theories into practice. They succeeded in securing a new city charter which granted to the city ample powers to own and operate its own public service plants, but stipulated that to carry them into effect and secure authority to issue bonds for such purposes, a referendum vote must be taken and a two-thirds majority of all votes cast secured. At a city election held December 2, 1902, a proposition was submitted to the people asking for authority to issue $700,000 in bonds for the purpose of equipping and operating the Geary Street Railway. There were 15,120 votes in favor of and 11,334 against the proposition. Not receiving the required two-thirds majority, the proposition was lost.

A committee of the board of aldermen of Worcester, Mass., appointed to inquire into the feasibility and expediency of a municipal electric lighting plant, after careful investigation, reported unfavorably on the scheme. The controlling reason for this decision was the higher cost of municipal service both as to original outlay and running expenses. The action of Boston, Brookline, and Springfield in renewing their contracts after investigating the question of municipal ownership, had great influence with the Worcester committee. They computed the cost of light furnished by the municipal plants of the State at nearly double the contract price, and figured that the cost of an arc light in Worcester would be raised from $109.50 per year to $168 per year. See OHIO.

MUNTZ, EUGÈNE, one of the most influential French art critics of his time, died October 30, 1902, at Paris. He was born December 16, 1845, at Soultz-sous-Forêt, Alsace. After completing his courses at the Lycée Bonaparte in Paris, and at the Ecole du Droit, and having become licentiate, he pursued artistic researches in Germany and England. In 1873 he was appointed curator of the archæological collections in the French school at Rome, and three years later accepted a position in the library of the Ecole des Beaux Arts, of which he became curator in 1878. He succeeded Taine in 1885, in the chair of æsthetics and the history of art, at the College of France, where he lectured until 1893. In that year he was elected a member of the Academy. He was an authority especially on the art of the Middle Ages and the Renaissance, and was a most indefatigable author. He published numerous works covering almost every branch of art, which, combining the greatest accuracy and exhaustiveness with the highest erudition, are valuable to students. His *Histoire de l'Art pendant la Renaissance* (3 vols., 1888-95), which was crowned by the Academy, is magnificently illustrated, and is a compilation of material of value from every source. Among works that should be mentioned are: *Notes sur les mosaïques de l'Italie* (1874), *Les Précurseurs de la Renaissance* (1881), *Etudes iconographiques et archéologiques sur le moyen-age* (1887), *Tapisseries, Broderies et Dentelles* (1890), *Florence et la Toscane* (1897), *Léonard de Vinci, l'Artiste, le Penseur, le Savant* (1899). He was an officer of the Legion of Honor, and a member of almost every important antiquarian society of Europe.

MUSIC in 1902. In the realm of music the year was marked by several characteristics. In the first place, cycles grew to be a fad in musical communities all over the world. The Wagner and Mozart cycles of previous years were succeeded by cycles of compositions by Verdi (Berlin, May), Tschaikowsky (Pyrmont, June 28-29), Bungert (Dresden), Bruckner (March 23—biennally at Linz, at communal expense), and even Donizetti (Zurich, October). Secondly, there was a notable change of attitude, especially among certain English-speaking critics, toward Richard Strauss, a change brought about apparently by reasoning that Wagner, too, was once misunderstood. The works of Bruckner, almost neglected until lately, came into great prominence during 1902; hardly an important musical community omitted to perform at least one of his works. Among the works of continued and growing popularity of former years, the works of Tschaikowsky in the concert domain, and Charpentier's *Louise* in the field of opera, made progress still further. Upon its production in various German cities, *Louise* met with an invariable success both with the critics and the public and ran into scores of performances in several opera houses. It required little keenness of observation to state a decided tendency among composers, critics, and public alike, away from the mythological music-dramas toward the rounded forms resting on an up-to-date orchestration and more or less well-knit libretto. On these lines were built *Der Richter von Zalamea*, by

Georg Jarns, and d'Albert's successful *Improvisator,* comic opera based on Hugo's *Angelo, the Tyrant of Padua,* and leaning to the methods of Verdi's *Falstaff;* while Strauss's *Feuersnoth,* Bungert's *Nausikaa* (Hamburg, February 20), Weingartner's *Orestes* (Leipzig, February 15), Kienzl's *Heilmar* (Berlin, January 28), and Dluski's *Urwasi* (Lemberg, February), were all failures.

Novelties.—Mahler's Fifth Symphony in D minor, with chorus and alto solo, had an extraordinary success at Magdeburg late in the autumn. The First Symphony of Emil Abrámji (nineteen years old) was praised as a magnificent first work, exhibiting a wealth of ideas, passion and originality, but a lack of symmetry and reserve. Sibelius's Second Symphony in D major was set down as a splendid achievement, masterly in subject matter and treatment, less Finnish than his former works, though suggestive of Tschaikowsky. Some praise was also given Hans Huber's Third Symphony in C at Basel, while Shilling's symphonic fantasia, *Meergruss,* was found too hazy, vague, and monotonous, in Germany. Busoni's Second Violin Sonata was considered one of the most important recent works, and the same judgment was passed upon Schrattenholz's String Quartette in B minor, performed by the Joachim forces at Berlin in the spring. Its melody and wealth of ideas were highly commended. In the nature of a novelty, also, appeared Bach's Concerto for four pianos and string orchestra, given under Stavenhagen at Munich. It is really an arrangement of Vivaldi's Concerto for four violins, and presents the Leipzig cantor in his happiest vein. In the field of opera Claude Debussy's comic opera in five acts, *Pelléas et Melisande,* was hailed at Paris as opening new paths, and Massenet's *Le Jongleur de Notre-Dame* (based on an ancient miracle-play), was pronounced his masterpiece, at Monte Carlo (in January). *La Troupe Jolicœur,* a comic opera in three acts and prologue by Arthur Coquard, won very favorable opinions at the Opéra Comique, Paris. Saint-Saëns's *Parysatis,* in three acts (Béziers, August 17) did not add to his laurels, and *Orsola,* by the brothers Hillemacher, which had awaited a performance for a quarter of a century, did not display any just claims for production. Of the two chief Italian novelties, Franchetti's *Germania* (La Scala, March 8) and Giacomo Orefice's *Cecilia* (Vicenza, August 16), the latter quite stirred up the connoisseurs. Pedrell's *Los Pireneos* (Barcelona, January) is the most imposing work ever written by a Spaniard—making splendid use of ancient religious and Oriental music. Of the German works several have been mentioned above. The unfortunate Hugo Wolf's *Corregidor* (Prague, May) won the highest praise, though Carl Weiss's *Der Polnische Jude* had the greatest success, making the rounds of the German operatic stage. Reznicek's *Till Eulenspiegel,* "volksoper" in two parts and a postlude, given at Karlsruhe (January 12), achieved a brilliant success. It is a folk-opera in the best sense of the word, tuneful, vivacious, facile. Leo Blech's "village-idyll," *Das war Ich* (Dresden), is a happy achievement in the new *genre* of "conversation-opera" of which d'Albert's *Abreise* has been the best specimen. Humperdinck's *Dornröschen* (Frankfort-on-the Main, November) brought forth the general advice to tread back to the path of *Hänsel and Gretel.* It is a case of *parturiunt montes* in orchestration and *ridiculus mus* in motives, except where folk-songs are employed. Schilling's "merry opera," *Der Pfeifertag* (Berlin, September 17); Hubay's *Der Dorlumpf* (Charlottenburg), and Stolzner's "Märchen-oper" *Rübezahl* (Dresden, June 14) fell through dismally. The last work, sentimental and dull, had only piquant rhythms in its favor, while the sole redeeming feature in Hubay's work was a violin solo played by himself. In Russia, Taneyeff's *Amour's Revenge,* in one act, proved a virtuoso achievement in writing melodious, graceful, often captivating music in the style of the libretto's epoch (Louis XIII.); Rimsky-Korsakoff's *Servilia* (time of Nero) did not come up to his operas on national subjects, and Napravnik's *Francesca* had a *succes d'estime*—all three produced at St. Petersburg; while at Warsaw Noskowski's *Livia Quintilia* was hailed with delight on April 19. François Thomé's incidental music to Anatole France's *Marriage de Corinthe* was pronounced the best of its kind since Massenet's *Phèdre* music, and Mascagni's music for *The Eternal City* (October 3, London) delighted numerous theatregoers. In choral works Felix Woyrsch's *Passion-Oratorio,* really belonging to a previous year, was given throughout Germany in 1902 with much success. It is "in its way a monumental work of church music of our times," "the nearest approach to Bach's masterpieces." *Loreley,* a Rhine-legend in four parts for solos, chorus, and orchestra, by Adolf Stierlin, was given successfully three times in two weeks at Münster.

Revivals and Local Novelties.—Of the older compositions Mozart's sparkling *Schauspieldirector* delighted the audience, while Gluck's pastoral *Maienkönigin* fell flat, at their revival at Munich in February, 1902. Handel's oratorio *Alexander Balus* was produced by the Handel Society of London on February 19, and his *Acis and Galatea* had to be repeated several times in March, before crowded houses. Méhul's *Joseph in Egypt* was a great success at both Munich and Düsseldorf in the spring, and his comic opera *L'Irato* was equally well received at Brussels after rest-

ing since 1823. C. Villiers Stanford's *Much Ado About Nothing*, produced at Leipzig (April 25), was found lacking invention and missing the right mood. *Siegfried* with Jean de Reszke as the hero had 18 performances at Paris early in the year, and had its initial production in St. Petersburg about the same time; as also had *Götterdämmerung* in the fall, while *Die Walküre* was introduced to the Moscow public. At the first performance of *Rheingold* in Nice the listeners "were astounded but not edified," and in March Lisbon heard *Die Meistersinger* for the first time. Charpentier's *Louise* was given its first hearing in most of the German and Austrian opera houses, and Tschaikowsky's *Iolanthe, Dame de Pique*, and *Eugène Onyéguin* were successfully produced in several European music centres. The reprise of Lalo's *Roi d'Ys* at the Paris Opéra Comique after 14 years was a genuine triumph for the work, so glowing in color, rare in instrumentation, magnificent in its vocal parts as well as in its symphonic music. A second-rate French opera company revived Gounod's *Mireille* and Massé's *Galathée* at Berlin in April.

Deaths, Anniversaries, and Jubilees.—The necrology list for 1902 included the great theoretician Jadassohn (Leipzig, February 1); Marchetti, the composer of *Ruy Blas* and president of the St. Cecilia of Rome (in January); the Wagnerian singer Paul Bulss (March 21); the matchless original Aida, Teresina Stoltz, who died at 62; and the composer, Franz Wüllner (September 7).

The one-hundredth anniversary of Haydn's *The Seasons* was celebrated at Münster (April 24, 1902); the six hundredth performance of *Don Giovanni* occurred at Berlin (June 20); and of *Freischütz* at Dresden; the four-hundredth representation of *Fidelio* was given December 17, and the two-hundredth of *Seraglio* April 17, both at Berlin. The Laibach Philharmonic Society celebrated its two-hundredth anniversary, and the St. Petersburg Philharmonic completed a century of existence, both being the oldest in their countries. A Verdi bust by Quadrelli was erected at the Milan cemetery (January 27, anniversary of the maestro's death) and a monument to Liszt was unveiled at Weimar on May 31. Among the living, Charles Lecocq passed his 70th birthday; Massenet, so aptly designated "Mam'selle Wagner," celebrated his 60th anniversary on May 12; Boito, the composer of the often-promised *Nerone* ("the greatest opera ever written," according to Verdi) completed his three-score years on February 24; and Ernest von Schuch's thirty years of conductorship were worthily commemorated at Dresden on March 16 by a production of *Don Pasquale*, the opera at which he had first tried his hand.

Festivals.—The 179th meeting of the Three Choirs took place at Worcester (September, 1902), with Ivor Atkins as conductor. The novelties, Granville Bantock's orchestral poem, *The Witch of Atlas*, H. Walter Davies's oratorio, *The Temple*, and Hugh Blair's cantata, *The Song of Deborah and Barak*, were completely overshadowed by Elgar's *Dream of Gerontius*. The Sheffield Triennial (October 1-3) was directed by Henry J. Wood. Elgar's *Coronation Ode* for soloists, chorus, and orchestra, presented rather more genuine merit than a mere *pièce d'occasion*, while Coleridge-Taylor's short cantata, *Meg Blanc*, and Coward's dramatic cantata, *Gareth and Linet*, were of the ordinary festival novelty calibre. At the Norwich Festival, beginning October 21, eight concerts were given under A. Randegger and Dr. A. H. Mann. Of the nine novelties, MacKenzie's suite *London Day by Day* evidently owed its origin to the success of Elgar's *Cockayne* overture. A. Randegger, Jr.'s dramatic cantata, *Werther's Shadow*, was manifestly none other than the opera produced in Italy as *Ombra di Werther* several years before. C. Villiers Stanford's spirited *Irish Rhapsody* for orchestra, Horatio Parker's cantata *A Star Song*, and Cowen's *Coronation Ode* were the other more important novelties. At Bristol (October 8-11) Elgar's *Ode* and *Concert-Overture*, Coleridge-Taylor's *Hiawatha* scenes, and Parker's *Legend of St. Christopher* were the novelties, Parker's composition winning considerable success. The chorus numbered 350 voices. The five concerts of the annual London Musical Festival (beginning April 28, at Queen's Hall) were conducted by Wood, Ysayé, Nikisch, Saint Saëns, and Weingartner successively. In the United States, the forty-fifth annual Worcester (Mass.) Musical Festival was conducted by Wallace Goodrich and Kneisel (September 30-October 4) the divided leadership proving an admirable innovation. The chorus numbered 400 and the orchestra 65 musicians from the Boston Symphony forces. Among the works produced, a part of Bach's *Christmas Oratorio*, Parker's *Hora Novissima*, and Chadwick's *Judith* commanded the greatest attention. F. S. Converse's splendid *Romance* for orchestra, a *Tone-poem* by Loeffler, G. Fauré's *Birth of Venus*, an air by Charpentier, and an excerpt from Strauss's *Feuersnoth* were the novelties. A splendid array of artists was employed, but the festival ended in a serious deficit. The Cincinnati Music Festival, held in May, consisted of five concerts, at which the great masterpieces Bach's *Mass in B minor*, Beethoven's *Eroica*, and César Franck's *Les Béatitudes* received particularly inspiring interpretations under Theodore Thomas, aided by an orchestra of 200 and a chorus of 500 voices. The Brooklyn Music Festival was held by the local Arion on November 27-29. In Germany the

thirty-eighth *Tonkünstler-Versammlung des Allgemeinen deutschen Musikvereins* took place on June 7-10 at Frefeld. At one of its six concerts Mahler's 3rd Symphony was the attraction. At the seventy-ninth *Niedderrhenisches Musikfest* (May 18-20) at Düsseldorf, Elgar's *Dream of Gerontius* was proclaimed a masterpiece by everybody. The Bayreuth Festival began on July 22 and embraced 20 performances: *Parsifal* 7, *Der fliegende Holländer* 5, and the *Nibelungenring* 2 each. The performances, under Richter, Mottl, and Muck were an improvement over those of the previous year. The 20 festival performances of *Tannhäuser* (4), *Lohengrin* (4), *Tristan* (5), and *Meistersinger* (7) at the Munich Prinz-Regententheater (August 9-September 12) surpassed even those of the year before. A few alterations turned it into one of the most perfect theatres acoustically. The *Festival Lyrique* at Paris of Wagner performances under the baton of the young pianist Cortot, was a success in every way. Litvinne's Brunnhilde, Van Dyck's Tristan, Dalmore's Siegfried, and the Waltraute of a Russian contralto Melgoonova won particular praise.

THE UNITED STATES.

Artists.—As usual a plethora of foreign artists came to the United States in 1902. Paderewski, as performer and composer of *Manru*, attracted as much attention as ever. Pugno returned in the fall to delight lovers of virile, well-balanced interpretations of the great masters of the keyboard. Nothing sensational, but a warm devotion to the highest ideals, is what his playing presents. Gabrilowitsch brought back the same idiosyncracies, a more advanced technique, a riper musicianship and more virility. The Scotch pianist Frederick Lamond gradually won recognition as an excellent interpreter of the classics, though somewhat lacking in the kind of temperament that appeals to the many. Arthur Hochman, a New York youth with Berlin schooling, won unstinted praise as the most promising pianist of equal age. Hambourg, remarkable in speed, power, and endurance, thrilled his audiences in Tschaikowsky's Concerto, and sang more melodiously than ever in Chopin, Schubert, and Schumann. Arthur Whiting continued pioneer work for his own compositions. Among the violinists Kocian did not gain the same favor in the autumn as Kubelik had won in the winter and spring. He revealed a sweet, feminine temperament, an astonishing but not impeccable technique, a lack of applomb and a more promising (though crude) gift of interpretation than Kubelik could boast. The nine-year-old Florizel von Reuter had the endowments and the inevitable crudities of a child prodigy. Maud McCarthy proved too immature for public appearances. Elsa Ruegger displayed more interpretative ripeness, masculine power in bowing, and digital dexterity in handling the 'cello than on her former visit. In vocal concerts, Marcella Sembrich drew large audiences, though decidedly on the decline vocally; Lilli Lehmann, equally poor in voice, continued as a great favorite in her recitals, and Calvé gave a song recital (March 17) bizarre in its intermingling of old and modern songs and unique in its application of stage methods to concert singing. In Mary Münchoff the public discovered a delicate art and lovely voice, a charming personality, a rare versatility in interpretation within her vocal limitations. The basso Herbert Witherspoon won high praise for a well-schooled voice of fine quality and great range of expression.

Musical Organizations.—The Boston Symphony Orchestra supplied the best music performed in a well-nigh perfect way; The Philharmonic, under the new leader—Walter Damrosch—struggled with the inveterate faults of its "old guard;" the Philadelphia Orchestra and the Pittsburg Orchestra showed more promising material than was in the New York Philharmonic; the People's Symphony Concerts in New York brought pleasure to numerous working people on the East Side, and F. Damrosch's Young People's Symphony Concerts kept up their reputation of a splendid "preparatory school" for the appreciation of the best in music. Franko's small orchestra still dispensed the "forgotten beauties" of old masterpieces. A series of orchestral concerts given by the young Wetzler proved a most welcome factor in the musical life of New York; frequent rehearsals, definite individual ideas as to the meaning of the composer, clear-cut outlines, and a vigorous baton, all combined to produce some of the most memorable though technically not the most perfect renderings of the great standbys of the concert stage. The Musical Art Society produced Bach's *A Stronghold Sure*, the People's Choral Union gave an excellent performance of Handel's *Israel in Egypt*, and the Oratorio Society its usual *Messiah* in Prout's unimportant revision, besides Schumann's *Paradise and the Peri*. In chamber music the Kneisel Quartet remained *hors de concours*, and the Mannes Quartet was organized in New York. In the summer, Kaltenborn's Orchestra in New York found a successful rival in the brass-band of the sensational Duss.

Opera.—The novelties were Mascagni's short *Zanetto*, beginning with the subdued warmth of a Provençal idyll, and his *Iris*, the prologue to which, depicting in a wonderful crescendo of glowing orchestral color the rising of the sun, was one of the most thrilling and imposing pieces of music of its kind heard in New York in

some time. Mascagni's conducting of *Cavalleria* was excellent. His company—efficient singers with small reputations—broke up after eleven weeks of touring. De Lara's *Messaline,* frankly reminiscent of other operas, though here and there genuinely original and strong, was condemned by "guardians of public morality" from among the musical critics on account of its subject. In it Calvé—now imperious, now plaintive—displayed all her wonderful resources of singing and acting. Paderewski's *Manru* was given before a full house. Sembrich appeared in *Manru, La Bohême* and *La Fille du Régiment.* De Marchis was favorably received in *Aida, Tosca, Traviata,* and *La Bohême.* Alvarez and Scotti enhanced their reputations by their performances in *Otello* and *Messaline;* Scotti also in *Nozze di Figaro, Rigoletto,* and *Traviata.* Eames was unable to excel Ternina as Tosca. The German tenors, Bandrowski (especially engaged for *Manru*), Anthes and Gerhäuser, did not justify the *casus belli* with which their opera houses threatened the new world for their departure. Bispham's Iago was Telramund in Venetian clothes—overacted and disclosing the "acting" at all times. In Kirkby Lunn a possessor of a magnificent contralto was found with some good routine acting and quite satisfactory singing.

In the United States the operas of the calendar year 1902 were as follows: *Carmen, Aida* (8 times each); *Lohengrin* (7 times); *Otello, Tosca* (6 times each); *Tannhäuser* (5 times), *Cavalleria Rusticana, Faust, Les Huguenots, Traviata* (4 times each); *Nozze di Figaro, Flauto Magico, Die Walküre, Messaline, Manru, La Fille du Régiment* (3 times each); *Barbiere di Siviglia, Tristan und Isolde, Le Prophète, Le Cid* (twice each); and one performance each of *Das Rheingold, Siegfried, Götterdämmerung, Die Meistersinger, Pagliacci, Roméo et Juliette, La Bohême* and *Rigoletto,* or 90 performances of 28 operas, giving 8 Wagner operas 21 times, and 4 Verdi operas 19 times. In the spring French opera-bouffe was given by a second-rate company. In September the Bostonians ran *Robin Hood* to the capacity of the Academy of Music (New York) for 4 weeks.

England.—There were six evening concerts by the Joachim Quartet; performances early in the year by the famous Bohemian Quartet; 10 Saturday popular concerts under Johann Kruse (formerly of the Joachim Quartet); 3 concerts at St. James's Hall by Hans Richter (in November); 5 concerts by the Meiningen Orchestra (under Fritz Steinbach), beginning November 17, and distinguished for the interpretation of the works of Brahms. Of the home organizations, the Philharmonic gave its ninetieth season very successfully, and Robert Newman's Orchestra of Queen's Hall resumed the Promenade Concerts under Henry J. Wood (September-November), and continued the Symphony Concerts.

Among the visiting artists Joachim, Ysayé Kocian, Kubelik, the youthful Philadelphian Arthur Hartmann, Kreisler, Busoni, Pachmann, Paderewski, Sapellnikoff, Borwick, and Dohnányi were the most distinguished.

The opera season (May 8-July 28) embraced 70 performances of 21 operas, with two cycles of Wagner's *Ring.* There were two innocuous novelties: Miss E. M. Smyth's *Der Wald,* an impotent attempt at a blending of the pastoral with latter-day realism, and Herbert Bunning's *La Princesse Osra,* based on a story by Anthony Hope. *Elisire D'Amore* was welcomed with delight at its revival, introducing as it did the young colorature soprano Regina Pacini and the tenor Caruso, a successful claimant for the place of Masini. In the older repertoire (*Lucia, Rigoletto*) as well as in *Aida* and *Bohême* he shone with equal splendor. Nature has produced in this artist an uniquely harmonious blending of voice, technique, temperament, interpretation, and physique. The other singers were Calvé, Melba, Nordica, Mary Garden, Lohse, Scheff, Kirkby-Lunn, and Fremstad; Van Dyck, Kraus, Saléza, Maréchale, Salignac, Pennarini, Scotti, Rénaud, Van Rooy, Bispham, Seveilhac, Pini-Corsi, Blass, and Plançon. In September the Moody-Manners forces gave English opera at a financial deficit, though with success artistically. Among the operas were *Trovatore, Faust, Lohengrin, Tannhäuser, Tristan und Isolde, Pagliacci* and *Cavalleria Rusticana.* Brozel, Coates, O'Mara, Manners, Fanny Moody, De Lussan, Alice Esty, and Marchesi were the chief artists. Emilio Pizzi's tragic *Rosalba* in one act was the novelty (September 26).

NAST, Thomas, an American cartoonist, died in Guayaquil, Ecuador, December 7, 1902. He was born in Landau, Bavaria, September 24, 1840, and when six years old was brought by his parents to the United States. As a boy of fourteen, with little training in art work, he began to furnish drawings for *Frank Leslie's Illustrated Newspaper,* and in 1860 went to Europe as a special artist for the *New York Illustrated News,* to make sketches of the prize fight between Heenan and Sayers, which aroused considerable public interest. Following this, he accompanied Garibaldi's armies, sketching for *The Illustrated London News, Le Monde Illustré,* and other papers in Europe and America, and often performing important diplomatic missions for the Italian patriot. The Civil War broke out soon after his return to the United States, and as a member of the staff of *Harper's Weekly* he began to produce the

war pictures, such as his famous "Peace" (1862), which gained for him a national reputation, and which were powerful influences upon public sentiment. After the war he turned his attention to political cartooning, and until his withdrawal from active work in 1887, through the ridicule and satire of his drawings he was the most feared of all newspaper cartoonists. His grotesque sketches describing the Greeley-Grant, Hayes-Tilden, and Blaine-Cleveland presidential campaigns were known throughout the United States, and his caricatures of Tweed and his accomplices were the potent influences in exposing the malfeasance of that notorious "ring." At first depicting only general situations, he gradually introduced individual caricature, displaying at all times a keen sense of political conditions and a remarkable power of invention. The elephant, donkey, and tiger, which are now the familiar symbols respectively of the Republican and Democratic parties and of Tammany Hall in New York City, were first pictured by him; and others of the political signs and names that now prevail were of his creation. His formal art education was confined to youthful study in the drawing classes of Theodore Kaufmann, but the realism and execution of his sketches earned for him description as the "American Hogarth." He possessed great skill in drawing likenesses. It was one of his portraits that led to the arrest of Tweed while a fugitive from justice in Madrid, though the crime pictured in the cartoon, which represented its subject holding aloft two of his confederates, was interpreted as kidnapping by the gendarme who made the fortunate capture. Nast's later activity was confined to book illustration and to giving lectures, which he illustrated by rapid and clever sketches while talking. At various times he worked in oils, and his paintings, "Lincoln's Visit to Richmond," "Saving the Flag," "The March Through Georgia," and "Departure of the Seventh Regiment," were much admired; but he was by nature and achievement preeminently a cartoonist. On May 1, 1902, he was appointed to succeed Perry M. de Leon as consul-general at Guayaquil. Here he succumbed to yellow fever.

NATAL, a colony of Great Britain in South Africa, on the Indian Ocean, bounded by Cape Colony, Basutoland, the Orange River Colony, and the Transvaal. The area, including the province of Zululand and the district annexed from the Transvaal in 1902 (see paragraph History) is 36,434 square miles, and the population about 993,000, of whom 850,000 are Zulus, 73,000 Europeans, and 70,000 East Indians. The capital is Pietermaritzburg, population (1900), 28,500, and the largest town and only seaport, Durban, population (1900), 48,410. The government maintains separate schools for Europeans, natives, and Indians, the enrollment in each being (1900) 10,511, 10,618, and 2895 respectively, exclusive of 1600 children attending private unaided schools.

Government and Finance.—The executive power is vested in a governor, assisted by a responsible ministry of six members appointed by himself. The legislative authority rests with a legislative council, appointed by the governor with the advice of the ministry for a term of ten years, and a legislative assembly of 39 members, elected on a limited suffrage for four years. The present governor is Sir Henry Edward McCallum appointed in 1901, and the premier since June, 1899, has been Sir Albert H. Hime. Colonial defense has, up to 1902, been provided by a force of mounted police and a naval defense corps, but after the conclusion of the Boer war the colony was made a separate command, with an establishment comprising infantry, cavalry, and artillery. The Natal volunteer force that served in the war numbered 148 officers and 2054 men, and their losses amounted to 8 officers and 122 men. The estimated cost of the war to the colony up to August 31, 1902, was £1,067,391. The colonial revenue for 1901 amounted to £2,970,742, as compared with £1,886,710 in 1900, and the expenditure in the same time increased from £1,990,522 to £2,480,932, leaving a surplus of £489,810. The colonial debt increased from £9,019,143 in 1900 to £10,574,143 in 1901. The revenue estimates for 1902 were placed at £3,400,000, with an estimated surplus of £316,000, the increase being accounted for by the great growth in the customs revenue.

Industries, Commerce, etc.—The great variety in the soil and climate of Natal results in an unusual diversity of products. The low region along the coast, with an almost tropical climate, produces sugar, coffee, arrowroot, ginger, tobacco, tea, and fruits. Tea planting only recently introduced, is increasing rapidly, the yield for 1900 being 1,679,600 pounds. In the same year the sugar production, the principal export crop, amounted to 333,768 cwt. In the midland region the acreage of cereal crops is being annually extended. In the highlands, sheep-farming and the raising of other kinds of live stock is the principal occupation of the inhabitants, and wool, hides, and skins and angora hair are produced for export. The coal fields, which are of large extent, are now connected with Durban by rail, and the increase of transportation facilities has brought about a corresponding increase in the output which amounted in 1898 to 387,811 tons, and in 1901 to 569,200 tons. The trade is largely with Great Britain, and shows a steady increase in spite of the depressing conditions resulting from the war. The imports, principally clothing, food-stuffs, and machinery

amounted in 1900 to £5,911,518, and in 1901 to £9,822,686, and the exports, which in 1900 amounted to only £1,134,172, reached a value of £4,268,817 in 1901. The values of the principal exports in 1901 were coal, £419,726; wool, £253,938; sugar, £113,041; bark, £69,850; and hides and skins, £49,850.

Communications.—There were, in 1902, 626 miles of railway open, almost all of which is owned and worked by the government. The main line extends 306 miles inland from Durban, via Pietermaritzburg, to Charlestown on the Transvaal border, the branch lines adding as much again to the mileage of the system. During July, 1902, the Zululand branch (53 miles in length) from the Lower Tugela to the St. Lucia gold fields, was opened for traffic. Work is in progress on a new connection, with the Cape Colony system, with which it will effect a junction at Riverside, on the Griqualand East boundary. The construction of an alternate trunk line through Natal, or the doubling of the existing main line to improve transportation facilities with the Transvaal, was proposed during 1902 and caused considerable political friction (see following paragraph).

History.—At the opening of the parliament on February 27, 1902, the governor, Sir Henry McCallum, spoke of two matters which proved of considerable importance. One was the proposed extension of the colony's boundaries, the other, the extension and improvement of the state railway system. In regard to the extension of the colonial boundaries by the inclusion of territory belonging to the former South African Republic nothing had been done at the time, but the governor's suggestion was quickly acted upon. On April 30, it was announced that the British government had consented to the extension, and on May 12 the annexation bill, providing for the transfer, was passed by the legislative assembly. The annexed district comprised Vryheid, Utrecht, and that portion of Wakkerstroom lying on the Natal side of the Drakensburg, and had an aggregate area of about 7000 square miles and an estimated population of 8000 Europeans and 50,000 natives. One of the conditions of the transfer provided for Natal's assuming a portion of the Transvaal debt, amounting to about £700,000. In July a commission consisting of representatives of Natal, the Transvaal, and the Imperial government, was appointed to determine the exact boundary of the annexed region. The agitation of the question of railway improvement or extension, brought out the fact that radical differences of opinion existed in the colony in regard to it. The necessity of increased railway facilities was accepted universally, and there was general acquiescence in the proposition to issue additional bonds to the amount of £5,000,000 for the construction. The difference of opinion manifested itself in proposals for the route. The government proposal is for doubling the present main line from Durban to Ladysmith. The proposal of the opposition is for the construction of a more direct line from Durban to Waschbank, just below Glencoe Junction, and they assert in its favor that it would open up a new part of the country not hitherto possessing railway facilities. A third proposition has been tentatively advanced for a line from Umlatoosi through Zululand, and the newly acquired territory to Ermelo, joining an eventual line from the Rand to Delagoa Bay. The railroad question proved to be the main issue at the elections of December 19, which resulted in the choice of 20 Ministerial and 19 Opposition members. Since the government had secured a majority of only one, and since from its membership the speaker is elected, the strength of the two parties in the legislative assembly was exactly equal. At the end of the year it seemed probable that a compromise would be effected, possibly accompanied by a partial reconstruction of the ministry. At a special session of the Natal legislature in November martial law was repealed, and a martial law indemnity bill passed. On December 30, 1902, Mr. Joseph Chamberlain, the British colonial secretary, announced at Pietermaritzburg that the Natal government had decided to forego their war claims against the imperial government, aggregating nearly £2,000,000, and that this sum would be considered Natal's contribution to the war.

NATIONAL ACADEMY OF SCIENCES. See ZOOLOGICAL SOCIETIES.

NATIONAL BANKS. The effect of the act of March 14, 1900, authorizing the organization of national banks with a capital of $25,000 in places having a population not exceeding 30,000, has been to increase greatly the number of such banks. From the date of the passage of that act to October 31, 1902, there were organized 805 associations with a capital of less than $50,000 and a total capitalization of $21,099,500. One of these banks was placed in charge of a receiver, and thirteen in voluntary liquidation, leaving 791 in active operation. Of this whole number 302, with a capitalization of $7,905,000 were formed during the year ending October 31, 1902. The largest number of small banks formed under this act were organized in the Middle States. These numbered 246 with a total capitalization of $6,485,000. The Western States ranked next, with 228 banks organized with a total capital of $5,850,000, while the Southern States came next with 196 banks organized with a total capital of $5,255,500. In the Eastern States 109 banks were organized with a total capital of $2,839,000; in the Pacific States 21 banks, with $545,000

capital, and in the New England States only five banks were organized, having a total capital of only $125,000. The States organizing the greatest number of small banks under the act of March 14, 1900, are: Texas, 112 banks, capital, $3,023,000;

States and Territories and Reserve Cities.	Number of Banks.		Individual Deposits.		Total Resources.	
	1901	1902	1901	1902	1901	1902
NEW ENGLAND STATES.						
Maine	84	86	$23,091,982.73	$24,211,221.41	$47,163,459.50	$47,350,434.41
New Hampshire	56	56	14,000,850.73	12,878,808.06	28,961,183.34	28,219,773.60
Vermont	47	48	11,705,534.65	12,077,289.43	26,156,055.57	26,437,856.65
Massachusetts	209	207	96,137,635.73	98,725,994.60	189,905,273.54	189,098,857.42
Boston	38	34	139,000,324.93	129,408,227.59	296,436,672.20	277,014,011.20
Rhode Island	38	36	18,579,862.97	18,742,447.35	44,688,644.04	44,002,459.51
Connecticut	83	83	44,367,443.19	45,210,149.65	94,013,354.70	95,104,064.82
Total	555	550	$326,883,633.93	$341,254,138.09	$727,324,642.99	$707,227,457.61
EASTERN STATES.						
New York	291	295	$128,556,170.38	$153,216,478.60	$212,571,859.23	$246,538,685.98
New York City	43	44	559,932,619.30	537,304,138.53	1,213,803,354.50	1,255,163,901.10
Albany	6	4	6,980,715.27	3,439,968.16	24,599,813.09	25,980,631.91
Brooklyn	5	5	12,863,915.62	12,934,124.86	24,946,696.26	22,608,724.58
New Jersey	126	124	77,918,119.44	83,925,951.21	127,874,949.61	138,022,054.14
Pennsylvania	454	480	210,343,846.78	225,408,771.89	329,300,875.14	346,807,894.84
Philadelphia	35	35	125,854,754.02	128,242,163.74	281,604,942.17	293,446,958.85
Pittsburg	32	35	80,818,685.09	93,199,544.94	156,033,068.95	185,245,848.98
Delaware	21	21	7,153,356.34	6,934,919.15	12,483,241.86	11,965,743.37
Maryland	58	63	16,446,080.59	18,140,210.08	27,207,298.69	29,338,226.08
Baltimore	20	19	30,061,585.54	34,075,613.76	74,432,163.27	80,588,238.93
District of Columbia	1	1	1,139,460.46	1,149,501.15	1,976,852.63	1,995,376.91
Washington	11	11	18,705,200.07	20,065,877.72	26,283,896.72	28,143,679.30
Total	1,103	1,137	$1,276,774,508.90	$1,322,037,263.79	$2,510,119,032.12	$2,665,845,964.97
SOUTHERN STATES.						
Virginia	50	58	$25,267,481.55	$28,133,645.15	$48,399,322.72	$52,830,065.63
West Virginia	47	51	19,010,634.12	20,637,806.27	30,579,163.98	33,326,376.93
North Carolina	36	38	8,341,139.43	8,631,739.90	17,384,992.37	18,059,647.16
South Carolina	17	17	5,619,339.32	5,764,388.76	12,863,637.24	12,966,952.52
Georgia	33	39	13,629,318.84	14,004,193.67	26,516,531.41	27,855,433.99
Savannah	2	2	687,795.92	944,057.46	2,634,989.51	2,608,021.64
Florida	17	20	7,935,801.53	7,874,141.20	12,150,439.58	12,309,715.44
Alabama	37	41	13,527,431.35	14,996,631.06	23,039,158.26	25,010,789.74
Mississippi	14	17	4,362,067.62	5,552,439.20	7,780,381.94	9,586,815.64
Louisiana	19	22	6,949,174.67	7,318,561.69	11,307,765.52	12,187,706.41
New Orleans	8	7	19,729,731.70	18,656,813.38	36,006,101.21	32,058,721.10
Texas	284	318	72,770,398.29	61,936,859.59	128,047,883.67	113,792,136.49
Houston	6	6	5,879,242.70	6,428,696.78	10,968,183.22	12,009,969.35
Dallas	.....	4	.....	5,953,895.15	.....	11,450,470.23
Arkansas	10	9	4,216,118.83	4,729,492.78	7,083,537.01	7,330,144.88
Kentucky	78	85	20,236,215.21	21,269,248.96	40,184,405.40	41,525,659.76
Louisville	8	8	9,434,396.69	10,088,685.53	31,566,859.34	34,152,600.17
Tennessee	56	59	24,347,067.85	26,442,538.40	45,503,213.31	46,955,844.28
Total	722	801	$261,943,355.62	$269,358,834.93	$491,968,565.69	$506,017,071.37
MIDDLE WESTERN STATES.						
Ohio	263	272	$101,008,720.65	$111,123,311.62	$164,380,661.73	$176,553,976.30
Cincinnati	13	13	31,154,593.70	33,265,970.80	71,356,367.17	75,494,428.96
Cleveland	18	16	27,785,958.32	26,660,358.27	74,076,805.77	76,581,146.20
Columbus	6	6	10,439,762.21	12,134,202.41	17,543,513.39	20,374,773.88
Indiana	109	138	53,228,104.60	58,331,127.03	82,828,020.89	88,962,687.61
Indianapolis	4	6	14,258,528.06	15,578,628.47	33,326,926.68	36,039,055.29
Illinois	203	263	96,993,526.27	105,683,377.15	148,147,797.97	158,006,732.16
Chicago	16	11	124,661,652.34	130,394,198.75	300,394,842.80	325,987,142.37
Michigan	74	79	45,540,314.50	49,036,966.01	65,581,238.59	69,634,278.62
Detroit	6	5	14,053,247.45	13,023,594.22	29,980,277.15	28,673,238.30
Wisconsin	75	94	14,995,937.91	47,810,770.68	61,237,617.35	64,323,487.63
Milwaukee	4	5	26,625,319.18	27,513,349.43	40,729,631.81	41,781,480.91
Minnesota	58	108	30,605,495.77	35,139,250.48	43,105,488.74	48,194,141.41
St. Paul	5	5	14,891,008.64	16,005,258.09	29,556,701.89	30,303,303.33
Minneapolis	6	4	13,881,924.19	12,798,796.99	30,726,119.42	29,618,798.54
Iowa	169	225	59,598,052.66	65,255,780.63	104,460,487.61	111,910,155.86
Des Moines	4	4	2,640,888.03	3,051,242.13	9,663,141.75	10,115,236.14
Missouri	50	58	14,705,007.49	15,116,239.50	23,321,729.80	23,326,579.54
St. Louis	6	6	44,498,107.83	50,597,555.38	130,569,961.51	141,656,743.61
Kansas City	5	6	23,879,514.49	26,204,392.17	69,024,422.21	68,984,370.09
St. Joseph	2	3	3,188,618.93	4,843,944.50	8,535,571.32	11,034,635.93
Total	1,270	1,327	$798,634,283.22	$859,568,314.71	$1,538,557,325.55	$1,637,556,392.68

States and Territories and Reserve Cities.	Number of Banks.		Individual Deposits.		Total Resources.	
	1901	1902	1901	1902	1901	1902
WESTERN STATES.						
North Dakota	36	47	$8,918,824.45	$8,823,317.97	$12,642,076.51	$13,115,574.10
South Dakota	35	42	8,300,354.83	9,889,848.92	12,348,090.36	14,471,974.01
Nebraska	107	112	22,934,783.69	25,212,093.59	37,633,086.31	40,375,815.11
Lincoln	3	3	2,438,469.81	2,470,543.84	5,034,295.87	5,210,396.62
Omaha	7	7	12,240,609.13	13,719,023.30	30,400,440.93	32,235,809.08
Kansas	119	126	33,615 130.70	33,867,715.00	62,439,129.10	52,246,843.52
Kansas City	1	2	2,364,463.76	2,607,523.97	8,101,432.45	7,704,121.96
Montana	22	23	14,624,646.07	14,716,602.23	20,604,097.37	21,051,917.78
Wyoming	14	15	4,228,063.24	4,897,033.45	6,215,587.52	7,149,063.18
Colorado	39	44	25,810,397.97	26,527,078.30	35,442,340.56	35,562,733.41
Denver	4	4	26,525,324.25	29,495,075.16	42,319,627.78	47,166,077.69
New Mexico	10	14	4,431,740.99	5,033,738.17	6,520,646.00	7,393,993.45
Oklahoma	49	66	9,442,350.57	9,636,258.80	14,035,963.51	14,804,275.03
Indian Territory	54	66	5,510,341.85	5,398,967.12	10,009,889.12	10,847,736.66
Total	500	571	$181,085,501.31	$192,276,819.82	$293,746,703.39	$310,337,331.60
PACIFIC STATES.						
Washington	32	34	$25,120,391.74	$29,516,179.68	$34,916,852.47	$40,375,302.14
Oregon	25	26	6,934,724.70	8,655,065.69	9,604,997.35	11,315,638.52
Portland	4	4	6,853,177.53	7,718,953.41	12,375,955.64	14,076,508.49
California	35	38	18,085,890.49	19,681,750.16	27,411,537.14	28,699,752.62
San Francisco	5	5	18,606,572.17	19,329,597.07	39,793,283.35	43,058,115.32
Los Angeles	6	6	8,609,158.79	12,086,114.73	13,477,774.80	17,338,097.37
Idaho	12	13	4,633,392.61	5,708,736.38	6,079,533.25	7,331,647.58
Utah	12	12	6,294,564.60	7,659,163.57	11,262,941.09	13,355,839.85
Nevada	1	1	445,160.47	475,437.18	638,573.82	601,037.52
Arizona	7	7	2,872,251.79	2,950,991.60	3,794,931.16	3,950,387.50
Alaska	1	1	99,659.12	82,736.38	213,469.60	215,408.66
Hawaii	1	2	541,738.83	515,675.02	1,426,516.10	1,453,021.73
Total	141	149	$99,096,682.84	$114,380,400.87	$161,014,365.75	$181,770,757.30
United States	4,291	4,535	$2,964,417,965.82	$3,098,875,772.21	$5,722,730,635.49	$6,008,754,975.53

Minnesota, 62 banks, capital, $1,570,000; Pennsylvania, 61 banks, capital, $1,582,000; Oklahoma, 53 banks, capital, $1,340,000; Iowa and Illinois, 49 each, capital, $1,300,000 each; Indian Territory, 43 banks, capital, $1,135,000. Of banks having a capital of $50,000 or over, 407, with a total capitalization of $49,060,000, were organized in the period from March 14, 1900, to October 31, 1902.

For other banks in the United States, see TRUST AND LOAN COMPANIES; PRIVATE BANKS; SAVINGS BANKS; and STATE BANKS; see also BANKS—BANKING.

NATIONAL EDUCATIONAL ASSOCIATION. See EDUCATIONAL ASSOCIATION, NATIONAL.

NATURAL GAS. The value of the natural gas produced in the United States in 1901 was $27,067,500, an increase of $3,368,826 over 1900. Important new developments were reported in West Virginia in Lewis, Harrison, Marion, Monongalia, and Wetzel counties, where wells sunk to depths of 3000 feet opened some very large reservoirs, yielding a daily output of from 10,000,000 to 15,000,000 cubic feet. This State is expected to make up for the decreased production in Ohio and Pennsylvania, and it is already supplying large quantities of gas to towns outside of its borders. Southeastern Kansas nearly doubled its output. Pockets of natural gas under enormous pressure were opened in the drilling of oil wells at Beaumont, Tex., but they gave no large flow. The gas was used chiefly to force the petroleum to the surface.

NAVAL ACADEMY, UNITED STATES, Annapolis, Md., established 1845. During 1901-02 the students numbered 407, and the instructors 69. There were 43,000 volumes in the library. The new armory was completed during 1902, and other buildings were in process of construction. The new academy, the appropriations for which amount to about $10,000,000, will require about five years for completion. The department of languages introduced the phonograph as a means of instruction in pronunciation with very successful results. The superintendent is Capt. W. H. Brownson, appointed November 6, 1902.

NAVAL DEVELOPMENT. During the year 1902 additions to the naval strength of the various powers of the world were carefully considered, the existing programmes being carried out and plans made for a large number of new vessels. The strength of the principal navies, including the number and displacement of

NUMBER AND DISPLACEMENT OF VESSELS OF DIFFERENT CLASSES, BUILT AND BUILDING, FOR THE PRINCIPAL NAVAL POWERS, NOVEMBER 30, 1902.

TYPE.	United States.				Great Britain.			
	Built.	Tons.	Building.	Tons.	Built.	Tons.	Building.	Tons.
Battleships, first class (above 10,000 tons)	10	112,329	9	131,200	41	551,160	11	167,750
Other battleships and coast-defense ironclads	10	41,002	2	6,428	5	40,740	...	.....
Armored cruisers	2	17,415	8	111,800	17	158,300	20	205,700
Protected cruisers, first class (above 6000 tons)	2	14,750	3	28,880	21	201,950	...	.....
Protected cruisers, second class (3000 to 6000 tons)	12	47,100	6	18,600	52	223,480	...	17,760
Unprotected and partially protected cruisers (above 1000)	23	32,111	...	.....	48	105,630	2	1,140
Gunboats (below 1000 tons and of or above 400 tons)	6	4,020	...	.....	84	70,645	...	.....
Torpedo-boat destroyers	12	5,259	5	1,620	108	35,066	23	11,455
Torpedo boats, first class (above 100 tons)	25	3,913	4	1,116	19	2,971	9	1,746
Torpedo boats, second class (below 100 tons)	6	285	...	.....	151	6,076	...	.....
Submarine boats	1	75	7	840	...	.....	9	1,305
Total displacement	109	278,259	44	300,484	546	1,401,018	78	406,856

Total built and building, United States, 153: 578,743 tons. Great Britain, 624: 1,807,874 tons.

TYPE.	France.				Germany.			
	Built.	Tons.	Building.	Tons.	Built.	Tons.	Building.	Tons.
Battleships, first class (above 10,000 tons)	20	225,667	6	87,780	9	100,969	5	62,779
Other battleships and coast-defense ironclads	19	87,303	...	.....	23	110,886	...	.....
Armored cruisers	15	105,324	...	110,546	3	28,146	2	18,238
Protected cruisers, first class (above 6000 tons)	4	31,513	...	.....	...	.....	...	.....
Protected cruisers, second class (3000 to 6000 tons)	17	68,783	1	5,595	10	50,120	1	3,250
Unprotected and partially protected cruisers (above 1000)	18	32,840	...	.....	30	61,250	5	13,446
Gunboats (below 1000 tons and of or above 400 tons)	25	14,151	...	.....	10	9,029	1	900
Torpedo-boat destroyers	16	4,764	18	5,388	35	11,815	6	2,100
Torpedo boats, first class (above 100 tons)	38	5,665	...	.....	47	7,080	...	.....
Torpedo boats, second class (below 100 tons)	186	13,379	26	2,319	38	3,420	...	.....
Submarine boats	12	1,553	22	1,704	...	.....	...	.....
Total displacement	370	590,942	83	213,332	205	382,715	20	100,713

Total built and building, France, 453: 804,274 tons. Germany, 225: 483,428 tons.

TYPE.	Japan.				Russia.			
	Built.	Tons.	Building.	Tons.	Built.	Tons.	Building.	Tons.
Battleships, first class (above 10,000 tons)	6	84,300	...	.....	11	124,231	8	105,754
Other battleships and coast-defense ironclads	2	9,287	...	.....	13	72,982	...	.....
Armored cruisers	7	60,600	...	.....	8	70,193	...	.....
Protected cruisers, first class (above 6000 tons)	...	.....	...	.....	5	32,330	4	26,340
Protected cruisers, second class (3000 to 6000 tons)	10	41,226	2	6,730	5	18,612	5	15,200
Unprotected and partially protected cruisers (above 1000)	14	25,570	...	.....	8	10,057	...	.....
Gunboats (below 1000 tons and of or above 400 tons)	12	6,906	...	.....	11	6,277	...	.....
Torpedo-boat destroyers	15	4,597	4	1,500	27	7,222	27	9,374
Torpedo boats, first class (above 100 tons)	18	1,240	6	900	39	4,670	10	1,500
Torpedo boats, second class (below 100 tons)	58	4,302	10	850	93	4,826	...	.....
Submarine boats	...	.....	...	.....	...	.....	1	.....
Total displacement	142	238,028	22	9,980	220	351,400	55	158,168

Total built and building, Japan, 164: 248,008 tons: Russia, 275: 509,568 tons.

TYPE.	Austria-Hungary.				Italy.			
	Built.	Tons.	Building.	Tons.	Built.	Tons.	Building.	Tons.
Battleships, first class (above 10,000 tons)	...	.....	2	21,200	9	116,596	7	88,553
Other battleships and coast-defense ironclads	9	57,430	2	16,600	2	19,290	...	.....
Armored cruisers	2	11,520	1	7,300	5	31,891	1	7,294
Protected cruisers, first class (above 6000 tons)	...	.....	...	.....	...	.....	...	.....
Protected cruisers, second class (3000 to 6000 tons)	2	8,128	...	.....	6	20,554	...	.....
Unprotected and partially protected cruisers (above 1000)	8	15,620	...	.....	15	30,209	...	.....
Gunboats (below 1000 tons and of or above 400 tons)	10	5,670	...	.....	16	12,774	...	.....
Torpedo-boat destroyers	...	.....	...	.....	9	2,833	2	650
Torpedo boats, first class (above 100 tons)	6	858	...	.....	13	1,706	4	560
Torpedo boats, second class (below 100 tons)	63	3,759	...	.....	124	8,140	...	.....
Submarine boats	...	.....	...	.....	1	105	1	.....
Total displacement	100	102,985	5	45,100	200	244,098	15	97,057

Total built and building, Austria-Hungary, 105: 148,085: Italy, 215: 341,155 tons.

N. B.—Vessels launched before 1878, unless reconstructed and re-armed, are not included in these lists. Unprotected cruisers and gunboats do not include converted merchant vessels or yachts.

vessels of different classes, is shown in the accompanying table prepared by the office of naval intelligence of the United States Navy Department. It will be seen that Great Britain leads not only in the number of vessels but also in tonnage, followed by France. The United States comes next with a greater tonnage but fewer vessels than Russia, Germany, and Italy. These countries, with Japan and Austria-Hungary, make up the principal naval powers of the world.

NAVAL MANŒUVRES. See MANŒUVRES, MILITARY AND NAVAL.

NEBRASKA, a central western State of the United States, has an area of 77,510 square miles. The capital is Lincoln. Nebraska was organized as a Territory May 30, 1854, and admitted as a State March 1, 1867. The population in 1900 was 1,066,300, and in June, 1902, as estimated by the government actuary, 1,068,000. In 1900 the populations of the three largest cities were: Omaha, 102,555; Lincoln, 40,169; South Omaha, 26,001.

Finance.—The balance in the treasury at the beginning of the biennial term ending November 29, 1902, was $615,018.34. The total receipts during the term were $6,742,-551.71 and the disbursements, $6,925,314.67, leaving a balance on hand, November 29, 1902, of $432,255.38. Of the receipts, $2,139,332.36 were on account of the general funds; $2,463,954.69 on account of the permanent school fund; $1,346,975.99 on account of the temporary school fund; and $426,841.23 on account of the temporary university fund. Of the amount derived from the general fund, $1,797,022.26 were from the collection of State taxes. At the end of the biennial term the trust funds, school, university, etc., held, as investments, bonds and warrants to the amount of $5,456,977.90. At the same time, the floating indebtedness of the State, created by making appropriations larger than the amount collectible from the State levy was $1,989,328.63, of which the educational trust funds held $1,457,351.56. The investment of the educational trust funds was stated by the treasurer to present a perplexing problem, as under existing constitutional limitations municipal bonds and school district bonds could not be paid.

Agriculture, etc.—According to the *Crop Reporter,* the leading crops of Nebraska for 1902 were: Corn, 7,817,962 acres, 252,520,173 bushels, value, $75,756,052; winter wheat, 1,895,362 acres, 43,972,398 bushels, $21,546,475; spring wheat, 629,788 acres, 874,053 bushels, $4,289,486; oats, 1,795,422 acres, 62,121,601 bushels, $15,530,400; rye, 160,139 acres, 3,250,822 bushels, $1,170,296; potatoes, 82,244 acres, 11,267,428 bushels, $3,042,206; hay, 556,398 acres, 968,133 tons, $4,221,060. The farm animals in the State January 1, 1903, comprised 772,231 horses, worth $42,983,085; 47,659 mules, $3,214,225; 618,894 milch cows, $17,533,267; 2,403,999 other cattle, $47,384,737; 536,239 sheep, $1,481,950; and 2,889,133 swine, $25,222,131. Nebraska ranked third in the raising of swine and fourth in cattle raising.

The Omaha stock market in 1902 did the largest business in its history. Cattle receipts in 1902 were 1,010,000; in 1901, 810,000. South Omaha as a sheep market was second only to Chicago. Receipts in 1902 were 1,325,000—an increase of 430,-000 over 1901. Receipts of hogs amounted only to 2,250,000, on account of the short corn supply, as against the record figure of 2,460,000 in 1901. In 1902 the Omaha Packing Company added a million-dollar beef plant to its already large investment. Omaha bank clearings increased from $334,102,066 in 1901 to $362,607,657 in 1902.

Conventions and Platforms.—The Republican State Convention was held at Lincoln on June 18, 1902. The President's policy was indorsed in the platform, especially with reference to Cuban reciprocity and the trusts. In State matters, a revision of the constitution was called for, and a demand was made for stricter enforcement of the laws regarding taxation and assessment. The passage of a law levying a tax upon the gross premiums of life and accident insurance companies was urged.

The Democrats and Populists held conventions at Grand Island on June 24, 1902. They united on a single ticket, nominating three Democrats and four Populists. William J. Bryan was nominated for governor by the Populists, but refused the nomination. The Democratic platform reaffirmed the Kansas City platform of 1900; declared the Republican party to be under control of the trusts; approved the attitude of Democrats in Congress regarding the Philippine question; favored the election of United States senators by direct vote; demanded the taxation of railroad and other franchise corporations; and pledged the party in the State, if placed in power, to abolish what is known as the "fellow-servant" law so far as it affects railroad and other corporations engaged in hazardous pursuits.

The Populist platform indorsed the previous platforms of Omaha, St. Louis, and Sioux Falls, and promised, if successful at the polls, to secure the higher taxation of railroads, and lower railroad tariffs, the enactment of the initiative and referendum, and the granting of liberal appropriations for the State university.

Elections.—At the regular biennial State election, held November 4, 1902, a full Republican State ticket was elected. The vote for governor was Mickey (Rep.), 96,471; Thompson (Fusionist), 91,116; giving the Republican candidate a plurality

of 5355. The State legislature for 1903 will consist of 29 Republicans and 4 Fusionists in the senate and 77 Republicans and 23 Fusionists in the house. Of the six Republican candidates for Congress, five were elected.

State Officers.—For 1902: Governor, E. P. Savage; lieutenant-governor, C. F. Steele; secretary of state, George W. Marsh; treasurer, William Stuefer; auditor, Charles Weston; attorney-general, F. N. Prout; superintendent of education, William K. Fowler; commissioner of public lands, George D. Follmer—all Republicans. For 1903: Governor, J. H. Mickey (elected for two years, term ending January, 1905); lieutenant-governor, E. G. McGilton; secretary of state, George W. Marsh; treasurer, Peter Mortensen; auditor, Charles Weston; attorney-general, F. N. Prout; superintendent of education, W. K. Fowler; commissioner of public lands, G. D. Follmer—all Republicans.

Supreme Court for 1902 and 1903: Chief justice, J. J. Sullivan (Dem.); associate justices, Silas A. Holcomb (Fus.) and S. H. Sedgwick (Rep.).

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

NEBRASKA, UNIVERSITY OF, Lincoln, Neb., founded 1869. The faculty in 1902 numbered 220 professors and instructors, and there were 2789 students. The gross income was $300,000. There were 55,000 volumes in the library. The determination of the regents to develop the university to its legitimate limit on the side of the most vital interest of the State—agriculture—resulted in 1902 in the establishment of new courses in forestry, animal husbandry, agricultural chemistry, and veterinary science. The chancellor in 1902 was E. Benjamin Andrews.

NEBULÆ. See ASTRONOMICAL PROGRESS.

NEEDHAM, CHARLES WILLIS, an American lawyer and educator, became president of the Columbian University, Washington, D. C., in 1902, after four years' service as dean of its school of comparative jurisprudence and diplomacy. He was born in Castile, N. Y., September 30, 1848, graduated in 1870 at the Albany Law School, and from 1874 to 1890 practised law in Chicago, where he aided in the reorganization of the University of Chicago, and served as one of its trustees. In 1890 he went to Washington, where he has since been prominent in legal circles. He was made professor of law in Columbian University in 1897, and soon after became dean of the school of diplomacy there, which he was most influential in founding and which, when formally opened in 1898, attracted wide attention from foreign jurists and diplomats.

NEEDHAM, GEORGE C., Irish-American evangelist, died in Narberth, Pa., February 16, 1902, at the age of fifty-six. He was born in the south of Ireland, and when only ten years old went to sea. On his return home he engaged in business, but soon became an evangelist and preached throughout England and Ireland. In 1868 he came to the United States, and became a close friend of Dwight L. Moody, rendering valuable assistance to Moody and Sankey in their religious work. He traveled constantly throughout the United States, occupied with his evangelistic work, in which he was very successful. His writings comprise many contributions to religious publications, a *Life* of Charles Spurgeon, with whom he was formerly associated, and several volumes, including *Shadow and Substance; Conflict and Courage; The Spiritual Life; Street Arabs.*

NEGRO PROBLEM. During the year 1902 the Southern question involving the relations between the white and black races was the subject of general discussion by the press of the country, and to some extent by Congress. Several incidents, some of which were of trifling importance, contributed to the reopening of the question and the revival of an issue that appeared to be settled. One of these was the act of the President of the United States in entertaining at the White House Mr. Booker T. Washingon, president of Tuskegee (Ala.) Institute. This was the subject of considerable criticism by the Southern whites, many of whom openly declared that in view of their well-known race prejudices the act was an offense against Southern customs and traditions. In some quarters the President was loudly abused and charged with favoring social equality of the two races—an attitude utterly abhorrent to the Southern whites and arousing doubt in their minds in regard to his Southern policy. The distrust was further increased by an address of the President delivered at Arlington Cemetery on Decoration Day, in which he criticised the practice of lynch law in the Southern States and warmly denounced those who engage in it. The situation was still further complicated by the attitude of the President toward the so-called "Lily White" movement in the South. This was a movement among the white Republicans of several Southern States to exclude negroes from participation in the party conventions, with a view to building up a "white man's" party which would receive the support of many Democrats who have hitherto refused to support the Republican party on account of the large number of negroes in its ranks. In accordance with this view, all negro delegates were excluded from

the seats to which they had been elected in the State conventions of Alabama, Texas, Louisiana, and North Carolina. The movement also assumed definite shape in Tennessee and Virginia, although there was no exclusion of negro delegates from the party conventions. It was alleged by Republicans who were conspicuous in this movement that President McKinley, whose Southern policy had been marked by success and tact, had favored the organization of a Republican party in the South composed of white men, and that his successor, President Roosevelt, had given them to understand that he was in sympathy with the movement. The President, however, shortly after the exclusion of the negroes from the Alabama convention, announced his disapproval of such methods and by way of punishing one of the leaders of the movement removed from office the collector of internal revenue for the State of Alabama. At the same time the President caused to be announced that the administration would not stand for the exclusion of any citizens on account of race or color from participation in politics. The President's policy of appointing negroes to office in the South has also been the subject of widespread discussion and of some abuse, and has tended to reopen the race question, although the facts show that he has appointed but few such persons to office, and the appointees are recognized as competent and worthy officials. The nomination of Dr. W. D. Crum, a negro of South Carolina, to be collector of the port of Charleston, was the only negro appointment that failed to receive the confirmation of the Senate or that has provoked any great amount of opposition. The white citizens of Charleston protested against the appointment of Dr. Crum, and the legislature of the State instructed the two United States senators to use their earnest efforts to prevent the confirmation of the appointment on the ground, among other things, that it was "in disregard of the sentiment and wishes of the people." Chiefly through the efforts of Senator Tillman the appointment failed to receive the consent of the Senate, but immediately after adjournment Crum was reappointed to serve during the recess. The insistence of the President upon this appointment in disregard of the local sentiment, had the effect of provoking ill feeling among the whites, who charged that his act was a personal affront to them and calculated to increase the animosity of the whites against the negroes. In a letter of November 26, 1902, to a prominent citizen of South Carolina, the President defended his policy of appointing capable negroes to office and announced his intention not to discriminate in his appointments simply on the ground of race or color, but to appoint "only men of high character and good capacity, whether white or black." Later he wrote in the same vein to Mr. Clark Howell, editor of the Atlanta *Constitution*.

Another incident that contributed to a revival of the discussion of the race question was the act of the President in closing the post-office at Indianola, Miss., and directing that all mail addressed to inhabitants of the town be sent to the office at Greenville, 25 miles distant. The reason that led the President to take this step was the alleged pressure which was brought by some of the white inhabitants to compel the resignation of the postmistress, Mrs. Minnie M. Cox, a colored woman, who had first been appointed by President Harrison and reappointed by President McKinley. It was alleged that her life had been threatened by the lawless element of the town and that her resignation had been requested by a committee of citizens on the ground that she was a negro and therefore obnoxious to the majority of the patrons of the office. Yielding to this pressure she resigned her position. When the real facts were learned the President decided to close the office. The President refused to reopen the office without assurance from the local authorities that Mrs. Cox would not be molested. The incident was made the subject of an animated discussion in Congress, the Southern members warmly criticising the act of the President as one which punished the innocent as well as the guilty. They charged that he should have directed the prosecution by the United States courts of those who conspired by force or intimidation to compel the resignation of the postmistress, and if necessary make use of the United States troops to protect her instead of closing the office. They insisted, furthermore, that the appointment of negro postmasters is offensive to white sentiment and is certain to stir up resentment and possibly violence against the negro race. Able speeches were made in defense of the President's policy by several members, who insisted that he could not discriminate against any citizen through deference to local sentiment or prejudice and that the circumstances attending the resignation of Mrs. Cox justified the closing of the office.

The usual attempt was made in the last Congress to institute an inquiry into the suffrage conditions of the Southern States with a view to reducing their representation in Congress in accordance with the provision of the fourteenth amendment. To this end Mr. Crumpacker, a representative from Indiana, introduced a resolution to appoint a committee of thirteen to investigate the question of the denial of suffrage to negroes in the South. This measure was denounced by the Southern members as the "bloody shirt" resolution intended to revive the race question and

increase sectional antagonism. In both sessions of the Fifty-seventh Congress the measure was referred to the committee on rules, but was never reported.

A further incident of the negro question was the formulation of a demand by the ex-slaves of the South for government pensions. A bill for this purpose was introduced into the Senate of the United States by Mr. Hanna of Ohio at the last session. It provided that all persons over fifty years of age and less than sixty, who were held as slaves should receive a cash bounty of $100 and a pension of $8 per month; those between sixty and seventy, a bounty of $300 and a pension of $12 per month; and persons over seventy, a bounty of $500 and a pension of $15 per month. It also provided for the payment of the bounty and pension to relatives who might be charged with the care of ex-slaves.

During 1902 the project for colonizing the negroes in the insular possessions of the United States was the subject of more than usual discussion. In Congress the principal advocate of the scheme was Senator Morgan, of Alabama. He urged the scheme upon the War Department, and as a preliminary step secured the appointment of Mr. T. Thomas Fortune, a New York negro, as a special commissioner to the Philippines to study and report upon the conditions and opportunities for colonization so far as the negroes are willing to avail themselves of the chances of homes in the islands.

The twelfth annual Tuskegee Negro Conference, of which Mr. Booker T. Washington is president, was held at Tuskegee, February 18-19, 1902. A large number of prominent educators were present, both white and black, from various parts of the country, and there was a general discussion of the important problems relating to the uplifting and advancement of the negro race.

NERVOCIDINE is a new local anæsthetic obtained from an Indian plant *gasubasu*, and discovered by a dentist in Fiume, Hungary. He separated the active principle of the drug, and treated this with hydrochloric acid. The resulting salt he termed nervocidine, a very powerful and lasting anæsthetic. Two drops of a one-twentieth per cent. solution applied to the human conjunctiva produced a burning sensation followed in twenty minutes by anæsthesia of the cornea lasting over five hours. A one-tenth per cent. solution brushed over the mucous membrane of the cheek produced local anæsthesia, loss of the sensations of taste and touch. The drug is not without its drawbacks, however, since it produces local irritation, slow anæsthesia, and a liability to nausea, vomiting, salivation, and other symptoms of general poisoning.

NETHERLANDS, a constitutional monarchy of northern Europe lying between Germany and the North Sea. The capital is The Hague.

Area and Population.—The total area of the eleven provinces comprising the Netherlands is 12,648 square miles. The population, which increased from 4,511,415 in 1889 to 5,103,924 in 1899, was officially estimated at 5,263,267 on December 31, 1901. The populations of the largest towns on December 31, 1901, were: Amsterdam, 530,718; Rotterdam, 341,050; The Hague, 218,029; Utrecht, 106,800. The constitution guarantees complete religious freedom to all denominations; there is no state church, although the royal family and a greater part of the population, belong to the Dutch Reformed Church, which is Presbyterian in its organization. All denominations receive fixed allowances from the state. Public instruction is free, and since 1900, obligatory for all children between the ages of six and thirteen. The cost of primary instruction in borne jointly by the state and the communes. At the four universities of Leyden, Utrecht, Groningen, and Amsterdam, there were 3028 students in attendance in 1899-1900. In the same year the enrollment in other public and private schools was 894,255.

Government.—The executive power is vested in the sovereign. The present ruler is Queen Wilhelmina, who succeeded her father, William III., in 1890, and was enthroned upon coming of age in 1898. The legislative authority rests jointly in the sovereign and the parliament, or States General, consisting of two chambers. The upper chamber is composed of 50 members elected by the Provincial States, or parliaments, from among the most highly assessed and official classes, for a term of nine years, one-third retiring every three years. The lower chamber is elected by direct, restricted suffrage for a term of four years. By the terms of the constitution all legislation must originate in the lower chamber, the upper chamber having the right of approval or rejection, but not of amendment. There is an advisory state council of 14 members appointed by the sovereign, and a responsible ministry, consisting of eight heads of departments. The country is divided into eleven provinces, each having its own representative body known as the "Provincial States." Each of the 1123 communes has a representative council. The ministry in 1902 was the coalition Catholic and Anti-Revolutionist government formed on the overthrow of the Liberals in 1901. It was constituted as follows: Premier and minister of interior, Dr. Abram Kuyper; foreign affairs, Baron von Lynden; justice, M. Loeff; finance, M. Harte

van Teckenberg; marine, Vice-Admiral Kruys; war, General Bergansius; commerce, industry, and dikes, M. de Mars Oyens; colonies, M. van Asch van Wijck.

Army and Navy.—The Netherlands possesses no standing army in the ordinary sense, but the regular military establishment, recruited partly by voluntary enlistment and partly by conscription, exclusive of the East Indian army, which is a separate organization, numbers on a peace footing (1900), about 27,000 officers and men. Members of the annual contingent, although nominally required to serve in person for a five-year term, actually render but twelve months active service, with six weeks practice annually thereafter for four years. There is also a militia organization, consisting of two classes, the active militia and the reserves. The army's war footing is 68,000, exclusive of officers. The navy consists of six armored cruisers, six protected cruisers, seven monitors, a large number of torpedo boats and destroyers, partially protected coast-defense vessels and gunboats.

Finance.—The unit of value is the guilder, valued at 40.2 cents. According to the budget estimates, the revenue for the years 1901 and 1902 increased from 149,472,180 guilders to 154,002,245 guilders, and the expenditure, from 154,755,492 guilders to 167,233,180 guilders. The principal sources of the revenue (1902) were: Excise duties, 50,020,000 guilders; direct taxes (land, personal, capital, and income taxes), 35,802,000 guilders; and indirect taxes, 22,161,000 guilders. The chief branches of expenditure were: Public works, 39,604,013 guilders; public debt, 34,731,380 guilders; finance, 25,444,357 guilders; and army, 23,953,441 guilders. The sum of 32,911,312 guilders was furnished by the Netherlands to the support of the East Indian, which is separate from the general budget. The national debt (1902) was 1,155,390,450 guilders. The Bank of the Netherlands, although a private institution, has the sole right of note issue, the circulation of which in 1902 amounted to 221,869,000 guilders.

Industries, Commerce, etc.—Agriculture is one of the most important industries of the Netherlands, the principal crops in order of importance, being wheat, rye, oats, barley, potatoes, and beets. The manufactures, which include textiles, bricks, pottery, butter, cheese, and cocoa, are extensive, and of increasing importance, but no official figures are obtainable as to annual production. Coal mines, mostly in the province of Limburg, extracted, in 1900, coal valued at 682,060 guilders. No official records of imports and exports are kept, the Netherlands being a free-trade country, but estimates placed the value of the imports, in 1900, at 1,968,000,000 guilders and the exports at 1,695,000,000 guilders. In the same year the transit trade was estimated at 5,808,000,000 guilders. Metals, textiles, and food products are the chief imports. The principal exports, in 1900 (in guilders), were: Cereals and flour, 191,957,000; iron and steel, 142,526,000; textiles, 88,059,000; copper, 88,292,000; and sugar, 53,786,000. The imports were chiefly from Germany, Great Britain, the United States, Belgium, and the Dutch East Indian colonies. Over 50 per cent. of the exports went to Prussia, Great Britain and Belgium taking a greater part of the remainder. In 1900 the railways had a length of 1730 miles, of which 969 miles were owned by the state. The length of the canals was, in 1900, over 2000 miles, and of the navigable rivers, about 3000 miles.

HISTORY.

Netherlands and the South African War.—It is quite natural that, bound as they are by racial ties, the Dutch in the Netherlands should have felt from the opening of hostilities in South Africa, a warm sympathy for the Boer cause. It is perhaps remarkable that this feeling has not found more open expression than it has. Early in January, 1902, Dr. Kuyper, the premier, visited London, and it was at once rumored that he had gone on a peace mission on behalf of the Boers. This was officially denied on the 16th, but on the 25th, it was announced that a communication had been addressed to the British government by the Dutch government offering its good offices in arranging a basis on which peace negotiations might be opened. The communication of the Dutch government further stated that if it were found that the Boer delegates then in Europe were willing to return to South Africa, there to confer with the Boers in the field, the Dutch government would be glad to place them in communication with British authorities on their return. To this note the British government replied on January 29 that, while they appreciated the disinterestedness of the Dutch government's suggestion, they could not recognize the right of any foreign Power to intervene in a matter which they considered to be purely a domestic concern of the British Empire. If the Boer delegates in Europe wished safe-conducts to South Africa the British government was willing to consider their application, but it was not clear, the reply continued, that they still retained any authority or influence in South African affairs. It was suggested in conclusion that the proper way for an opening of peace negotiations, if the Boers desired it, was for Steyn, Schalk Burger, and others in power in South Africa to send proposals to Lord Kitchener, as the British government had decided that the peace must be negotiated in South Africa and not in Europe. See TRANSVAAL (paragraph Peace Negotiations).

The Queen's Illness and the Succession.—In the middle of April, 1902, Queen Wilhelmina was taken ill with typhoid fever, and while she was recovering, early in May, she was prematurely confined and for some days was in a critical condition, but happily recovered. The question of her successor in case she died without issue became thus for a time a very real one. The succession in the Netherlands, if male and female heirs fail, is decided by the sovereign and parliament (or by parliament alone if the sovereign is dead) with its numbers doubled for that purpose. The present heir-presumptive is the young grand duke of Saxe-Weimar. Next in line is Prince Albert of Prussia, regent of Brunswick. Both of these heirs are princes of the German Empire, and the Dutch look with natural suspicion on any closer connection with that country.

Political Affairs.—The States-General were opened by the queen in person on September 16, 1902. The speech from the throne outlined proposed legislation in the following matters: An increase of state educational facilities, a restriction of compulsory vaccination, a system of pensions for teachers, the regulation of private and the abolition of state lotteries, and an amendment to the sugar law to make it accord with the Brussels convention. The statement in the speech from the throne that the Netherlands had no desire to enter into any foreign alliance called forth considerable comment. It was pointed out that while such an alliance might force the government into various unfortunate complications, it would in no way afford any protection not already enjoyed. For, even in view of the far-reaching pan-German movement, the independence of Holland for some time at least is assured; this is necessary for the balance of power in Europe. No government, except that of Germany, is regarded as a menace to Dutch independence, and with the other governments the balance of power is so important that they would not allow its break-up by Germany. On September 18 Baron van Lynden, the minister of foreign affairs, officially denied that there was any truth in the rumors of a German alliance. At the same time there was said to be a growing desire for securing a recognition of the complete neutrality of the Netherlands in all international affairs.

NETTLESHIP, John Trivett, an English animal painter, died on August 30, 1902. He was born at Kettering, February 11, 1841, studied at Durham School, and in 1868 published *Essays on Robert Browning's Poetry* (reprinted as *Robert Browning; Essays and Thoughts,* 1890). This was among the first works to consider that poet seriously and in detail, and of it the *Saturday Review* observed: "He is very reverent and industrious, and his book shows many excellent characteristics of temper and tone; but his prose is bad, and his critical quality intensely jejune." He turned painter, however, and after courses at Heatherley's and the Slade School, was a regular exhibitor at the Royal Academy, and the New and Grosvenor Galleries. Best of his pictures were his animal-studies, in particular those of leopards, lions, and polar bears. These were all based on intelligent understanding and executed with much imagination, despite a certain roughness of technique more apparent in later canvases. The "Puma Devouring a Peacock" may be cited among the more interesting. Nettleship further wrote, *George Morland, and the Evolution from Him of Some Later Painters* (1898).

NEVADA, a Pacific Slope State of the United States, has an area of 110,700 square miles. The capital is Carson City. Nevada was organized as a Territory March 2, 1861, and was admitted as a State October 31, 1864. The population in 1880, was 66,266; in 1890, 45,761; in 1900, 42,335; in June, 1902, as estimated by the government actuary, it was 42,000. Nevada has the smallest population of any State in the Union and is the only State showing a steady decline for twenty years. According to the congressional reapportionment act of 1900, the population of Nevada should be increased nearly five-fold to allow it one member in the House of Representatives. The largest town in 1900 was Reno, 4500 inhabitants.

Finance.—The cash balance in the treasury on December 31, 1901, was $269,850.01. The receipts during the year amounted to $497,124.82, and the disbursements to $484,580.75, leaving a balance on December 31, 1902, of $280,394.08. The main items of revenue and the amounts derived therefrom were: The general fund, $175,999.61; the State school fund, $85,618.04; and the State interest and sinking fund, $133,977.74. The total outstanding bonded indebtedness of Nevada at the end of 1902 was $620,100, a net reduction during the year of approximately $60,000. All these bonds were held by the school and university funds, which at the same time, held $900,000 in other bonds, making a total of $1,520,100.

Agriculture and Mining.—Very little agriculture is carried on in Nevada except in the mountain valleys, where the lands can be easily irrigated. The only two crops of any considerable importance are hay and wheat, which were reported as follows for 1902: Wheat, 19,839 acres, 537,637 bushels, value, $526,884; hay, 132,712 acres, 386,192 tons, $3,495,038. There were in the State January 1, 1903, 76,011 horses worth $2,655,629; 2152 mules, $95,777; 16,010 milch cows, $597,653; 364,165 other cattle, $8,138,873; 1,034,826 sheep, $2,991,166; and 14,158 swine, $99,106.

There was a remarkable development of the gold and silver mines in 1901 and 1902. The output of gold in 1900 was $2,023,803. In 1902, according to the director of the United States mint, the output had increased to $3,514,212. In 1900 but $797,290 worth of silver ore was produced; in 1901 the output increased $2,358,000, but fell back to $2,120,000 in 1902. In the latter year Nevada ranked sixth among the States in the production of gold and fifth in the production of silver. One of the principal developments of the year was the treatment of the tailings of the old silver amalgamation mills by the cyanide process. Several plants worked steadily at recovering the waste metal of the Comstock lode. The Montana Mining Company erected a cyanide plant near Tuscarora.

Conventions and Platforms.—The platform of the Republican party in 1902 said, with reference to the trusts and the tariff: "The Republicans of Nevada are uncompromisingly in favor of the policy of protection to American industries and American labor. We point to the present unparalleled era of prosperity and confidently appeal to the people for their judgment in support of the protective principles of tariff legislation. The Republican party pledges itself to correct any inequalities in the tariff laws, as the same may become manifest, and provide for such adjustments as will destroy all trusts and monopolies." The nomination of President Roosevelt in 1904 was called for, and a demand was made for legislation looking to the suppression of anarchy, lynching, and all forms of mob violence.

The Democratic State Convention was held at Reno on August 27, 1902. The platform declared in favor of the free coinage of silver and the removal of protective duties on trust-made articles sold to foreign consumers cheaper than to domestic consumers; advocated trust legislation; approved the applications to admit Arizona, New Mexico, and Oklahoma to statehood, and entered protest against the ship subsidy plan and imperialism. United States Senator Stewart was denounced and Congressman Newlands was commended for their positions in certain matters of current legislation. The Democrats and Silver men joined issues, divided the nominations, and ratified them in joint convention.

Elections.—At the regular biennial State election held November 4, 1902, all the State officers were voted for. The Silver party captured all the places with the exception of the superintendent of public instruction and the secretary of state, which went to the Republicans. The vote for governor was: Sparks (Silver Dem.), 6529; and Cleveland (Rep.), 4786, giving the Silver Democratic candidate a plurality of 1743. The State legislature for 1903 will consist of 9 Democrats and 4 Republicans in the senate, and 28 Democrats and 5 Republicans in the house.

State Officers.—For 1902: Governor, Reinhold Sadler; lieutenant-governor, James R. Judge; secretary of state, Eugene Howell; treasurer, D. M. Ryan; comptroller, Samuel P. Davis; superintendent of education, Orvis Ring; attorney-general, William Woodburn; surveyor, E. D. Kelley; superintendent of State printing, A. Mante—all Silver party except Ring, Republican. For 1903: Governor, John Sparks (elected for four years, term ending January, 1907); lieutenant-governor, Lemuel Allen; secretary of state, W. G. Douglas; treasurer, D. M. Ryan; comptroller, S. P. Davis; superintendent of public instruction, Orvis Ring; attorney-general, James G. Sweeney; surveyor, E. D. Kelley; superintendent of State printing, A. Mante—all Silver party except Ring and Douglas, Republicans.

Supreme Court for 1903: Chief justice, C. H. Belknap; associate justices, A. L. Fitzgerald and G. F. Talbot—all Silver party.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

NEW BRUNSWICK, a province of the Dominion of Canada, with an area of 28,200 square miles, and a population, according to the census of 1901, of 331,120, as against 321,263 in 1891. Capital, Fredericton; population, about 7000. In 1901 there were in the province 1741 public schools with a total enrollment of 60,420, a slight decrease both in schools and pupils as compared with 1900.

Government and Finance.—The administration of the province is in the hands of a lieutenant-governor assisted by a responsible ministry. There is one legislative assembly of 46 members, elected on a property qualification. In the Dominion Senate the province is represented by 10 members, and in the House of Commons by 13. The revenue and expenditure for the fiscal year 1901 were $1,236,456 and $1,112,902 respectively. Of the revenues, the chief sources were the Dominion subsidy, $483,491; eastern extension claim, $275,692; territorial revenue, $200,319; taxes of incorporated companies, $25,289; liquor licenses, $21,307. Of the expenditure, the chief items were for education, $200,681; public works, $296,077; interest (not chargeable to special funds), $136,135. The provincial debt on October 31, 1901, was $3,496,502.

Industries, Commerce, etc.—The trade of the province for the fiscal year 1902 was considerably in excess of that of the previous year, the exports being $17,657,751, as compared with $14,886,454 in 1901, and the imports $7,307,271, as compared with

$6,741,848. The leading crops for 1901 were: Oats, 4,944,992 bushels; buckwheat, 1,479,477 bushels; potatoes, 4,077,478 bushels. The production of cheese in 1901 amounted to 1,887,370 pounds, and of butter 542,646.

NEWFOUNDLAND, a British island colony of North America, with an area of 42,200 square miles. Labrador (*q.v.*) is a dependency of the colony. The population of the island and dependency, according to the census of 1901, was 220,249, of which Newfoundland had 216,615 and Labrador 3634, as compared with 197,930 and 4106 respectively in 1891. Of the total population 76,259 were Roman Catholics, 72,650 Anglicans, 60,812 Methodists, while members of the Salvation Army numbered about 6500.

Government and Finance.—The colony is administered by a governor, who is assisted by an executive council. There is a legislative council of 15 appointed life members, and a legislative assembly of 36 members, elected by popular vote for four years. The financial condition is prosperous. The revenue for the fiscal year 1902 was about $2,200,000, exceeding that of the previous year by $100,000. The public debt in 1902 was nearly $20,000,000. Sir Cavendish Boyle is governor.

Industries and Commerce.—Fishing, chiefly cod, is the chief industry, but the development of the forests and of mineral deposits was carried on in 1902 with unusual enterprise. The annual value of the fisheries is over $6,000,000. The herring fisheries in 1902 were exceptionally prosperous. The official report of the mineral production for 1901 shows it to be considerably in excess of that of the previous year, the copper mined being 75,348 tons, as compared with 70,614 tons in 1900, and the iron ore, 738,206 tons, as compared with 320,463 tons in 1900. Agriculture has not until recently prospered much, but the improved general outlook in 1902 has given an encouraging impetus to this branch of industry. The imports and exports for 1901 were considerably in excess of those for 1900, which were $7,497,147 and $8,627,576, respectively.

History, 1902.—The long-standing question of French fishing rights on the west shore continued to harass the colonists during the year. Complaints were made that they were harshly treated by the French fishermen, and many of them carried guns in their boats in order to protect their nets. On the expiry of the *modus vivendi* with France on December 31, 1901, Colonial Secretary Chamberlain asked that the Newfoundland legislature renew it for another year, and the latter agreed to do so as a contribution in aid of the imperial cause in South Africa, Great Britain being at that time in no condition to take up the question of the fisheries difficulty with France. The *modus vivendi* was renewed in February, 1902. The colonial legislature assembled on February 20, and passed bills to preserve the whale fishery, to encourage the exploitation of the iron ore deposits, and to promote the export of fishery products by establishing cold storage.

The question of confederation with Canada came to the front again during 1902, partly by reason of the resignation of Mr. Justice Morrison from the bench in order to lead a political party in promotion of union with the Dominion. Premier Bond would not favor the movement until Canada would offer better terms, and Mr. Morine, leader of the opposition, declared that the question cannot be a party one, but must be taken up by both sides, and he added that a majority of the people were indifferent to it. The argument advanced in favor of it by Mr. Morine and his supporters is that Newfoundland could get better terms from the United States if she were a province of the Dominion than she can in her present position, and that if the change were made the French shore difficulty could be finally settled. A treaty between the United States and Newfoundland took effect on August 1, 1902, by which domestic money-order rates will apply between the two countries. The conclusion of the dispute between "Czar" Reid, the well-known contractor, and the government as to the amount fairly due Mr. Reid under the claim made by him was effected by an arbitration tribunal, presided over by Alfred Lyttleton, a member of the British House of Commons. By the decision on October 8 Mr. Reid was unanimously awarded $854,000.

The most important event of 1902, from an industrial point of view, was the negotiations at Washington, which resulted in the Bond-Hay reciprocity treaty, signed on November 8. The treaty, if ratified by the United States Senate, will secure privileges for American fishermen in Newfoundland waters, as well as for the entry of American goods, and in return will permit the free entry into the United States of the fish product of the island, excepting fresh or "green" cod. It is in essentials similar to the Bond-Blaine convention, which was disallowed by Great Britain in 1890.

NEW GUINEA, or PAPUA, the largest of the East Indies, has an estimated area of 306,000 square miles, and an estimated population of about 660,000. It comprises three dependencies, belonging to Great Britain, Germany, and the Netherlands.

British New Guinea, a colony comprising the southeastern part of the island, has a mainland area estimated at 87,786 square miles, besides islands aggregating 2754 square miles. The estimated population is about 350,000. In November, 1901, the Commonwealth of Australia undertook the administration of the government. The capital is Port Moresby. In the fiscal year 1900 revenue and expenditure amounted to £13,831 and £19,315 respectively, and imports and exports £72,286 and £56,167 respectively.

In May, 1902, the bishop of New Guinea stated that cannibalism in that island was still practised, and he cited a number of recent instances, including the murder of Rev. James Chalmers and a number of his assistants in April, 1901. The bishop stated that the government staff is so small and the area over which it has jurisdiction so large that little can be done effectively towards stamping out cannibalism. Efforts, however, are being made through the schools, of which there are fifteen, with one thousand native children in attendance, while fifteen thousand natives are under the influence of the Church of England Mission, which has a staff of about thirty members.

Kaiser Wilhelm's Land, or German New Guinea, constituting the northern division of the eastern part of the island, has an estimated area, including several adjacent islands, of 69,027 square miles and a population estimated at 110,000. The protectorate, with the Bismarck Archipelago (*q.v.*) and the Solomon Islands, is administered by an imperial commissioner stationed at Herbertshöhe in the archipelago. The local capital and one of the chief harbors is Friedrich Wilhelmshafen. For the fiscal year 1903 the estimated revenue (including an imperial contribution of 722,000 marks) and expenditure balanced at 822,000 marks. (The mark is worth 23.8 cents.) In the fiscal year 1900 imports and exports were valued at 377,681 marks and 212,117 marks respectively. The tobacco export amounted to 119,360 marks, and the copra 65,000 marks.

Dutch New Guinea, comprising the western division of the island, has an estimated area of 157,789 square miles and an estimated population of over 200,000. Administratively the colony is regarded as a part of the residency of Ternati, Molucca Islands; but Dutch authority is very limited, and most of the districts are under the rule of native sultans. Early in 1902 reports were widely current that on January 1 cannibals had murdered near Sileraka twenty-five members of a French scientific expedition, but later in the year they were denied. *Petermann's Mitteilungen*, indeed, maintained that there had been no such expedition.

NEW HAMPSHIRE, a New England State of the United States, has an area of 9307 square miles. The capital is Concord. Population, in 1900, was 411,588, while in June, 1902, as estimated by the government actuary, it was 419,000. The populations of the two largest cities in 1900 were: Manchester, 56,987; Nashua, 23,898.

Finance.—The report of the treasurer for the fiscal year ending May 31, 1902, showed that cash on hand on June 1, 1901, amounted to $447,907.02; that total treasury receipts during the year were $1,389,322.67, and that the disbursements during the year were $1,261,614.57, leaving cash on hand on June 1, 1902, amounting to $575,615.12. At the same time the funded debt of the State amounted to $839,200; the trust funds debt to $813,574.37, and other liabilities to $16,276.93, making a total of $1,669,071.30. If from this sum is deducted the cash on hand, amounting to $576,615.12, and other assets amounting to $337,023.82, the net State liabilities remaining on June 1, 1902, would be $756,432.36. Of the revenue for the year, $425,000 was derived from the State tax; $158,341.77 from the railway tax; $40,444.89 from the insurance tax, and $108,372.53 in settlement of a long pending claim of New Hampshire against the United States government for interest paid on bonds issued to provide funds to raise and equip the State's quota of troops in the Civil War.

Agriculture and Manufactures.—The principal crops for 1902, as reported by the *Crop Reporter*, were: Corn, 28,761 acres, 670,131 bushels, value, $489,196; potatoes, 18,650 acres, 2,238,000 bushels, $1,544,220; hay, 625,851 acres, 663,402 tons, $8,989,097. According to the report of the New Hampshire Bureau of Labor for the year ending June 30, 1901, there were 1454 manufacturing establishments in the State, having a total capital of $88,943,235 and producing a gross product valued at $111,933,030. The total number of wage-earners was 74,883, receiving in wages $28,253,304. There were also employed in the manufacturing industries 1784 salaried clerks and officials receiving $1,907,124. The statistics for the previous year showed a total capitalization of manufacturing industries amounting to $86,632,297, a gross product of $103,429,553, and total wages of $26,144,340. The total amount invested in permanent repairs and improvements during the fiscal year 1900-01 was $1,720,063. The following table gives statistics of the eight leading industries of New Hampshire for the fiscal year 1900-01.

Industry.	Capital Invested.	Value of Gross Product.	Total Number of Wage Earners.	Total Wages Paid.	Amount Invested in Permanent Repairs, Enlargements, etc.
Cotton and print cloth	$25,335,861	$28,693,353	24,214	$8,422,146	$400,398
Boots and shoes	5,957,827	22,988,189	12,864	4,933,886	50,043
Lumber	8,880,485	8,032,712	7,005	2,501,802	149,816
Woolen goods	6,134,417	5,916,599	3,159	1,202,655	244,245
Paper and paper products	7,714,573	4,517,644	1,754	780,288	230,818
Machines and machinery	2,072,565	2,661,300	7,005	2,501,802	149,816
Hosiery and knit goods	1,662,000	2,660,443	2,671	780,269	16,240
Food preparations	1,153,948	2,438,764	351	126,816	20,816

The cotton industry has recovered the lead among the industries of the State which it lost to the boot and shoe industry in 1899. The value of cotton manufactures increased $4,972,591, or about 17 per cent., from 1900 to 1901, while the value of boots and shoes decreased $1,714,071, or about 7 per cent. The lumber production increased during the same time about $1,374,461, or more than 20 per cent.

State Liquor Laws.—The liquor laws of the State, although never enforced, have, for the past fifty years, forbidden the sale of intoxicating liquors by any persons except properly authorized State and town agents. Attempts made in Manchester to establish and carry out a plan known as the "Healey system" failed. It virtually meant licensing by means of periodical fines, which aggregated about $1000 annually for each of the sixty saloons doing business in that city. The Healey system developed strong opposition among business men, leaders of the temperance movement and others, who did not approve of the system because it had been inaugurated without authority from the legislature, and because of its demoralizing tendency. Efforts were made to check the spreading movement, and finally, D. H. Goodell, the former governor of the State, petitioned the Superior Court to issue a writ of mandamus requiring the local authorities to carry out the law. On January 1, 1902, a hearing was given by Judge Peaslee, who granted a writ, to take effect from January 4. For a time the law was rigorously enforced as a result of Judge Peaslee's action, but, owing to the unpopularity of the law, the Healey system again came into practice. The movement, however, in the direction of reform, aroused such deep interest that the question of prohibition has become a clear-cut political issue, which will probably result in a change in the liquor law.

Conventions and Platforms.—The Democratic State Convention was held at Concord September 10, 1902. The platform called for the immediate abolition of all tariffs upon trust-made articles; the enforcement of existing laws against trusts and other combinations, also the enactment of new laws to strengthen those now in force; the restriction of corporations other than banks and insurance companies from holding stock in other corporations, and the amendment of the State prohibitory liquor law in such a way as to place control in the hands of the majority in cities and towns. The Republican State Convention was held at Concord on September 17, 1902. The platform indorsed the administration of President Roosevelt. Regarding the trusts the platform said: "While we favor legitimate combination of capital which will reduce the price of necessities to the people, we condemn any such combinations as will restrict business and throttle competition by unjust and tyrannical practices."

Elections.—At the regular State election, held November 4, 1902, the full Republican State ticket was elected. The vote for governor was: Bachelder (Rep.), 42,-115, and Hollis (Dem.), 33,844, giving Bachelder a plurality of 8271. The State legislature for 1903 will consist of 21 Republicans and 3 Democrats in the senate, and 256 Republicans and 137 Democrats in the house.

State Officers.—For 1902: Governor, Chester B. Jordan; secretary of state, E. N. Pearson; treasurer, Solon A. Carter; attorney-general, Edwin G. Eastman; superintendent of education, Channing Folsom; secretary of the board of agriculture, N. J. Bachelder; commissioner of insurance, John C. Linehan—all Republicans. For 1903: Governor, N. J. Bachelder, elected for two years, term ending January, 1905; secretary of state, E. N. Pearson; treasurer, Solon A. Carter; attorney-general, Edwin G. Eastman; superintendent of education, Channing Folsom; secretary of the board of agriculture, N. J. Bachelder; commissioner of insurance, J. C. Linehan —all Republicans.

Supreme Court for 1903: Chief justice, Frank N. Parsons (Rep.); associate justices, William M. Chase (Dem.), Reuben E. Walker (Rep.), James W. Remick (Rep.), George H. Bingham (Dem.).

For congressional representatives, see United States (paragraph Congressional Representatives).

NEW HEBRIDES, a group of islands lying west of Fiji, have an area of about 3000 square miles and a population of about 100,000. The status of the New

Hebrides rests upon the Anglo-French agreements of November 16, 1887, and January 26, 1888, whereby the protection of persons and property was entrusted to a joint naval commission of two British and two French officers and a president who in alternate months is the British or French commanding officer on the station. The British and French settlers are about equal in number, but Protestant propaganda among the natives has been more successful than Roman Catholic. Prejudicial to native and to British interests is the attitude of the French, who buy land from the natives at insignificant rates, making payment in "arms, ammunition, and alcohol." The French government seems indisposed to correct abuses by which its hold on the islands is being steadily strengthened. The action of the French has caused much irritation among the Australians.

NEW JERSEY, a Middle Atlantic State of the United States, has an area of 8815 square miles. The capital is Trenton. New Jersey was one of the original thirteen States. The population in 1900 was 1,883,669, while in June, 1902, as estimated by the government actuary, it was 1,978,000. The populations of the five largest cities in 1900 were: Newark, 246,070; Jersey City, 206,433; Paterson, 105,171; Camden, 75,395; and Trenton, 73,302.

Finance.—On November 1, 1901, the balance in the State treasury amounted to $2,465,520.16. The total receipts during the year were $7,150,165.50 and the total disbursements $6,755,676.94, leaving in the treasury on October 31, 1902, $2,880,008.72. The main items of revenue and their aggregate amounts were as follows: From the State fund, $4,317,846.08; from the school fund, $603,341.47; from the State school tax, $1,486,806.75; from the local tax on railway corporations, $400,784.47; from the allotment of taxes on railroad and canal property of the taxing districts, $200,461.93. In the amount received from the State fund was $149,576.74 from the collateral inheritance tax; $150,000 from the repayment of loans to the school fund; $130,966.90 from the commissioner of banking and insurance, and $593,287.27 from the secretary of state, mainly on account of fees for incorporation. The last of the State debt, amounting to $71,000 on war bonds, was paid during the year.

Agriculture and Industries.—The principal crops of New Jersey for 1902, as given by the *Crop Reporter*, were as follows: Corn, 292,770 acres, 10,100,565 bushels, value, $4,598,739; hay, 408,081 acres, 497,859 tons, $7,786,515. There was considerable growth of the industries of the State in 1902. Two new cotton mills, three woollen mills, twelve silk mills, and eight knitting mills were built. Only Pennsylvania built more silk mills. The production of pig-iron increased from 155,746 tons in 1901, to 191,380 tons in 1902, and the production of zinc oxide from 47,821 short tons to 46,500 tons. Nearly all of it was made at the works of the New Jersey Zinc Company. New Jersey was one of the foremost producers of Portland cement. Clay products, including brick, tile, and pottery, valued at $11,681,878, were produced in 1901, an amount exceeded only by Ohio and Pennsylvania.

Conventions and Platforms.—The Republican State Convention was held at Trenton September 26, 1902. The course adopted by President Roosevelt in continuing the policy of his predecessor was approved and the support of the Republicans of New Jersey was promised. The party declared itself to be the friend of labor and pledged itself to maintain the rights and liberties of the working people and protect them from any encroachments thereon. The platform indorsed the administration of Governor Murphy and called attention to the fact that "under the policy inaugurated by the Republican party in this State, over $800,000 was appropriated at the last session of the legislature toward the payment of the State school tax, every dollar of which is a contribution toward the reduction of local taxes. More than $1,500,000 of the State's income is now annually disbursed to our various taxing districts as their dividend from a wise administration of State affairs."

The Democratic State Convention was held at Trenton October 1, 1902. The platform was taken up chiefly with State issues. It omitted all mention of Mr. Bryan and national finance. It denounced the Republican governor and legislature and asked for a thorough revision of the State tax laws. Concerning labor and capital it said: "Every attempt on the part of organized labor to secure legislation in its interest has been defeated by the Republican party. It has shown that it is hostile to the wage-workers of the State. Every important act on the statute books in the interest of labor was placed there by Democratic legislatures. We believe that the true interest of labor and capital lies in a complete comprehension of their respective rights and duties and a common desire to have a complete understanding between them. They are friends, and not foes. Great loss has fallen upon the industrial interest of the State by bitter struggles, which have resulted in strikes and discontent." The platform extended sympathy to the Boers and favored the election of United States senators by direct vote of the people.

Casualties.—Several serious casualties occurred in the State during 1902. In February the city of Paterson was flooded by the overflowing of the Passaic River. The factories were obliged to close, and the main part of the city, during the height

of the flood, was several feet under water; this was followed on the 9th of the month, by a fire that did damage to the amount of nearly $10,000,000. The section consumed by the fire, which lasted a night and a day, was over a mile in length and one-third of a mile wide. There were no lives lost, but it was found necessary to call out the militia of the district to maintain order and prevent depredation. The rebuilding of the burned section was undertaken promptly, and at the end of the year many new buildings had been erected. In April, a great fire occurred at Atlantic City. Several large hotels were destroyed and a number of residences and business buildings were badly damaged. The total loss was estimated at more than $1,000,000.

Labor Troubles.—Serious riots took place in Paterson on June 18, 1902. They had their origin in a strike of the silk dyers in the largest mills. The strike had been threatened for nearly two months. During the latter part of April the head of one of the dye mills was called upon by letter to revise his time-limit, making it 55 hours a week. A request was made at the same time for payment of 20 cents an hour and 30 cents overtime for the dyers' helpers, who had hitherto been receiving 16½ cents an hour, or $9 a week. In the demand, a decision was called for within thirty minutes. As this was not forthcoming, the employees struck. They then visited the other silk mills in the city, and, during the day, strengthened their numbers to 3700, including dyers, helpers, and silk finishers. The strikers remained out for nearly eight weeks without creating any disturbance. During this time they formed a union which they termed the United Dyers, Helpers, and Finishers of America. The mill owners, on their part, organized the Silk Dyers' Association. When the rioting began in June the mob was led by two men prominent among the strikers. The mills were attacked and much property was destroyed. Prominent among the leaders of the strike was William MacQueen, an English anarchist. The police proved unable to control the crowds. The mayor of Paterson took a personal part in restoring order. He superseded the chief of police, and, with the aid of the fire department, quelled the rioters after ten had been wounded. The governor of the State responded to an appeal for help by sending troops promptly, but when they reached the city, order had been restored. The strike was declared off a week later. In connection with this disturbance, a vigilance committee to stamp out anarchism was formed by the citizens. On June 30, MacQueen was arrested. On the same day the dye-houses and nearly all the silk mills resumed operations.

Elections.—At the regular annual State election, held November 4, 1902, the entire Republican State ticket was elected. The State legislature on January 28, 1902, elected J. F. Dryden (Rep.) United States Senator to serve out the unexpired term of the late William S. Sewall (Rep.), ending March 4, 1907. In the Republican caucus, held January 23, Mr. Dryden was nominated after nineteen ballots, his chief competitors in the contest being ex-State Senator Edward C. Stokes, and ex-Attorney-General John W. Griggs. The State legislature for 1903 will consist of 14 Republicans and 7 Democrats in the senate, and 38 Republicans and 22 Democrats in the house.

State Officers.—For 1902 and 1903: Governor, Franklin Murphy, elected for three years, term ending January, 1905; secretary of state, George Wurts to April, 1902; S. D. Dickinson to April, 1907; comptroller, William S. Hancock to April, 1903; J. Willard Morgan to April, 1906; treasurer, Frank O. Briggs, to April, 1906; attorney-general, Samuel H. Grey to April, 1902; Thomas N. McCarter to April, 1907; superintendent of public instruction, Charles J. Baxter to April, 1903, reappointed for term ending April, 1906; commissioner of banking and insurance, William Bettle to April, 1903—all Republicans.

Supreme Court: Chief justice, W. S. Gummere (Rep.); associate justices, John F. Fort (Rep.), J. Dixon (Rep.), B. Vansyckel (Dem.), C. G. Garrison (Dem.), A. Q. Garretson (Dem.), M. Pitney (Rep.), Charles E. Hendrickson (Dem.), Gilbert Collins (Rep.).

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

NEW JERUSALEM, CHURCH OF THE, comprises the General Convention of the New Jerusalem in the United States of America and the General Church of the New Jerusalem, the latter in 1897 having become an independent division of the New Church. In the United States the Church of the New Jerusalem, whose adherents are more commonly known as Swedenborgians, dates from 1792, when the first congregation was formed, and as an organized body, from 1817, the year of the establishment of the General Convention. The larger division of the church, the General Convention, for 1902, reports 6812 members, 108 ministers, and 108 societies. Under its auspices are Urbana University, Urbana, O.; the New Church School, Waltham, Mass.; and a theological school in Cambridge, Mass. The General Church of the New Jerusalem, with headquarters at Huntingdon Valley, Pa., has an approximate membership of 600. It maintains, at Huntingdon Valley, an academy including a theological department, and colleges for boys and girls. The General Church

is represented by *New Church Life*, and the General Convention by *The New Church Messenger*.

NEW MEXICO, a southwestern Territory of the United States, has an area of 122,460 square miles. New Mexico was organized as a Territory, December 13, 1850. The capital is Santa Fé. The population in 1900 was 193,510, while in June, 1902, as estimated by the government actuary, it was 203,000. The largest city in 1900 was Albuquerque with 6238 inhabitants. This population of the Territory is stated by the governor to be much below actual numbers, and in proof of this he brings forward the fact that in October, 1900, there were 59,297 registered voters, and that allowing for five persons to one voter, the total population could not be less than 296,000, an excess of 100,000 over the census returns.

Finance.—The assessed valuation of property in New Mexico in 1902 was $41,108,-745.07. The bonded debt on June 1, 1902, was $1,123,300; sinking funds on hand for the redemption of bonded debt, $89,246.26, leaving a net bonded debt of $1,034,053.74. The Territorial tax levy for all purposes in 1902 was 13.99 mills on the dollar. During the fiscal year ending June 30, 1902, there were formed in New Mexico 110 corporations, with a total capitalization of $73,017,630, for the purposes of mining, milling, and smelting; 63 with a total capitalization of $4,796,500 for manufacturing and other industrial enterprises; 6 banking and loan associations with a total capitalization of $4,830,000; 5 railway banks with a capital of $6,200,000, and 10 irrigation and land improvement banks, with a capitalization of $2,011,000. The gain in the number of industrial corporations organized in 1902 over those in 1901 was 53. The coal and coke industry gives employment to some 2000 persons, and the machinery and operating plants are valued at $715,000. The net output of the coal mines for 1902 was 1,102,046 tons, valued at the mines at $1,609,898.90. Coke production for 1902 amounted to 25,012 tons, valued at $58,207. The gold, silver, lead, and copper output of the year was estimated at between $6,000,000 and $7,000,000, and the value of the turquoise mined in New Mexico was about $138,000.

Agriculture and Industries.—The leading farm products of New Mexico as given by the *Crop Reporter* for 1902, were: Corn, 36,909 acres, 811,998 bushels, value, $633,358; spring wheat, 45,624 acres, 780,170 bushels, $670,946; hay, 72,077 acres, 172,985 tons, $1,933,972. For the year ending June 30, 1902, no less than 133,835 head of cattle were inspected for removal from the Territory, and the income derived from these shipments amounted to nearly $3,000,000. The number of sheep owned in the Territory was estimated at 5,000,000, and the wool clip for 1902 surpassed the 20,000,000-pound mark. Spring lambs in 1902 numbered about 1,000,000. Shipments for the year amounted to 406,908 head, selling as high as 3½ cents per pound and netting the grower as high as $2.40 per head. A conservative estimate of the live stock on the ranges of New Mexico at the end of 1902 put the value at $40,000,000.

Irrigation.—More than 3000 miles of irrigation ditches are now in operation in the Territory, the cost of which exceeds $6,000,000. In the northwest is the Springer system of irrigation with 50 miles of ditches and five reservoirs, covering 22,000 acres. The Vermejo system, in the same region, controls 57 miles of ditches, having ten reservoirs, and supplies water for 30,000 acres. There are now in active operation 40 miles of canals and main laterals so arranged that at any time they can be extended in any direction. The annual water rent imposed by the irrigation companies is about $1.25 per acre. No less than fifty companies have been organized for irrigation projects in the central portion of the Territory, and several plants were put in operation. There were, in 1902, about 125,000 acres under irrigation from wells, making the grand total of irrigated lands nearly 400,000 acres.

Land Conditions.—The work of the United States Court of Private Land Claims in settling titles to the Spanish and Mexican land grants continued throughout 1902. During the life of this court it has adjudicated title to about 24,000,000 acres of land claimed under various grants and titles, all of which, with the exception of about 1,000,000, has been determined to be public land and restored to the public domain. Cases involving about 141,760 acres are still pending. Within the last two years (1901 and 1902) a total of 1,112,551.54 acres of the public domain have been entered under the homestead and various other government land laws. Two-thirds of the area taken up is in the counties of Colfax, Union, Guadalupe, Sante Fé, Lincoln, Chaves, and Otero, contiguous to the new lines of railroad.

Under act of Congress June 21, 1898, donating a limited area of the public lands to the benefit of the Territory for educational and other worthy purposes, the United States Commission has selected and entered for the benefit of the various institutions 820,026.58 acres, including 79,693.25 acres of saline lands. In view of the present urgent needs for utilizing every possible available resource for advancing the Territory's educational development the governor urges that additional grants of public lands be made to New Mexico. There were in 1902 more than 50,000,000 acres of the public domain within the borders of the Territory, the area having been

increased through the operations of the United States Court of Private Land Claims during the past three years by about 6,000,000 acres, hitherto claimed as land grants.

The Territory, owing to its sheep and cattle interests, is especially concerned in the enactment of the proposed national lease law.

Educational.—The statistics for the school year 1900-01 showed a school population of 62,864, an increase over the previous year of 9856, or 18.6 per cent. The total enrollment in the schools was 42,925; the average attendance 29,825. The number of schools was 726; the number of teachers, 1046, drawing $412,340.28 in salaries. The annual receipts for school purposes were $838,018.70; the annual expenditures were $723,048.32; the value of all school property was $2,071,702.25; the amount expended in improvements on public school property during the year was $242,617.60; the average annual cost of educating pupils enrolled in Territorial institutions was $159.66 per capita.

Needs of the Territory.—The governor in his report for 1902 stated as the first requirement of the Territory, the need of capital to exploit and develop the mines of precious metals, coal, and iron, as well as to aid agriculture and stock growing. In view of the progress that the Territory has already made, its natural resources, its educational institutions, and all the elements constituting good citizenship, he alleged that there could be no good reason for longer refusing New Mexico admission to statehood. This question, indeed, was much discussed during 1902. The fact that the Spanish-speaking element, which forms a large part of the population, is to a great extent illiterate and lacking in knowledge regarding the principles and methods of government in the United States has introduced an element of grave doubt as to the advisability of granting the privilege asked for until educational and other developments become more satisfactory. The proportion of illiteracy among the native whites, which is greater than in any other State or Territory, is a most serious drawback. Again, the proportion of females to males is, it is contended by many, far too small to insure settled conditions. Only in the neighborhood of Santa Fé, is the proportion of the sexes at all equal. New Mexico was included in the area covered in November by Senator Beveridge's committee, sent from Washington to visit the southwestern Territories to study the entire situation with a view of making a report for the information and guidance of Congress. The general sentiment of the country in 1902 seemed to be against the admission of the southwestern Territories till they should have developed further in wealth, population, and education.

Territorial Officers.—For 1902 and 1903: Governor, Miguel A. Otero; secretary, J. W. Reynolds; treasurer, J. H. Vaughn; auditor, W. G. Sargent; adjutant-general, W. H. Whiteman; attorney-general, E. L. Bartlett; superintendent of education, J. F. Chaves—all Republicans.

Supreme Court in 1902 and 1903: Chief justice, William J. Mills; associate justices, John R. McFie, Frank W. Parker, Daniel H. McMillan, and Benjamin S. Baker—all Republicans.

NEW SOUTH WALES, a southeastern state of the Commonwealth of Australia. The capital is Sydney, with a population in 1901 of 111,801.

Area, Population, etc.—The estimated area of the state is 310,700 square miles. The population in 1901 was 1,359,537, which was an increase of a little more than 20 per cent. for the decade 1891-1901. In religious affiliation over 500,000 of the inhabitants are adherents of the Church of England and about 300,000 are Roman Catholics. Education, controlled by the state, is compulsory. The total enrollment in 2818 state schools in 1901 was 241,790. The enrollment for the same year in the 889 private schools and colleges was 60,282. The expenditure of the state on education in 1901 amounted to £918,819.

Government and Finance.—The executive power in the state is exercised by a governor appointed by the crown (Vice-Admiral Sir Harry Rawson, appointed 1902), and assisted by a responsible ministry of ten members. The legislative power is vested in a parliament consisting of a legislative council appointed by the crown and an elected legislative assembly. The revenues of the state government for the fiscal year ending June 30, 1902, were £10,612,422, as compared with £10,794,233 for the preceding year. The expenditure in the same years increased from £10,176,761 to £10,729,741. The public debt at the close of the fiscal year 1901-02 was £67,361,246, an increase from £65,332,993 in the previous year. The revenue is derived largely from taxation (customs, excise, land, stamp, and income taxes), the public lands and the income from public services (railways, posts, telegraph, water supply, etc.). The largest expenditures are for construction and maintenance of public works (largely reproductive), state railways, public instruction, and interest on the public debt.

Industries, Commerce, etc.—Of the total area of the state only a little over 1 per cent. was under crop in 1900-01. One-quarter of the area is covered with forests. The production of the principal crops for the year ending March 31, 1902, was as follows: Wheat, 14,808,705 bushels; maize, 3,844,903 bushels; potatoes, 39,146 tons;

sugar-cane, 187,711 tons; wines, 868,479 gallons; oranges, 604,546 cases. The hay crop for 1901 was estimated at 348,406 tons. There are valuable mineral deposits, including coal, copper, silver, gold, lead, platinum, and precious stones. The value of all minerals mined in 1901 was £5,854,150, of which gold amounted to £921,282. The number of persons employed in the mines and smelters in 1900 was 46,806. There were in 1901 3362 manufactories employing 66,135 persons. Stock-raising and sheep-farming are among the most important of the state's industries. At the beginning of 1902 there were 486,716 horses, 2,047,454 cattle, 41,857,999 sheep, and 263,730 pigs; but the continued drought probably reduced all these totals considerably by the end of the year. The wool clip in 1900 was stated at 237,659,726 pounds, valued at £7,676,805. In 1901-02 there was a considerable falling off in both the imports and exports, the value of the former having decreased from £27,561,071 in 1900-01 to £26,928,218, and the latter from £28,164,516 to £27,351,124. The principal articles of export (not including bullion) in order of value are wool, coal, wheat, hides and skins, tallow and leather. On June 30, 1902, there were 3,107.5 miles of railway in operation, all but 81.5 being owned and operated by the state. The construction cost of the state lines on that date was £40,565,073. The net profits from the state lines for 1900-01 were £1,530,578. There were 104 miles of state tramways constructed, at a cost of £2,829,578.

History.—The State Parliament opened on May 28, 1902. In his opening address the new governor, Sir Harry Rawson, who had been appointed in January, declared that the government would seek to curtail the loan expenditure on public works. The ministerial programme included a bill for the reform of municipal corporations, a bill for the extension of the suffrage to women, and proposals for a referendum to reduce the membership of the legislative assembly from 125 to 94. All of these measures were speedily enacted with little oppositon. More important than any legislation of the year was the organization of the Industrial Arbitration Court provided for by an act passed late in 1901. By this act New South Wales actually surpasses New Zealand in taking from employers the right of managing their own business. The act is based on that of New Zealand, but differs from it in having no boards of conciliation. Like the New Zealand act, its critics declare, it will have the effect of creating disputes instead of preventing them. The act provides for the appointment of a registrar, who shall register as "industrial unions" any person or company or associations of persons or companies employing 50 workers, and any trade union or branch thereof. The judges of the court consist of a judge of the State Supreme Court as president, and one representative of the employers and one of the workers, all appointed for three years. It has full power to make inquiries, may call for evidence, legal or otherwise, determine its own procedure and summon before it any one it chooses. Its decisions are final, and a decision given in any single dispute becomes a common rule applicable to the whole industry. The court may determine the minimum wage, hours of employment, terms of employment or dismissal, and the interpretation of any industrial agreement.

NEW YORK, a Middle Atlantic State of the United States, and one of the original thirteen, has an area of 49,170 square miles. New York has a larger population than any other State in the Union, the number of its inhabitants in 1900 being 7,268,012, while in June, 1902, as estimated by the government actuary, it was 7,538,000. The populations of the largest cities in 1900 were: New York, the largest city in the United States, 3,437,202; Buffalo, 352,387; Rochester, 162,608; Syracuse, 108,374; Albany, 94,157; Troy, 60,651; and Utica, 56,383.

Finance.—The report of the comptroller of New York for the year ending September 30, 1902, showed that the balance on hand on October 1, 1901, was $9,789,351.16; the total actual receipts during the year were $23,660,775.43; the total actual expenditures $23,220,272.68, and the balance on September 30, 1902, $10,229,853.91. The main items of revenue were derived from direct taxes netting $6,973,663.82; taxes on corporations netting $6,606,750.29; an inheritance tax netting $3,303,554.72, and a liquor tax netting $4,221,671.99 The main items of expenditure were: State departments, commissioners, etc., $2,350,354.08; charitable institutions, including hospitals for the insane, $6,803,762.25; educational institutions, $5,367,016.85; canals, $2,263,092.29; legislature, $615,195.22; legislative printing and advertising, $724,664.90; judiciary, $1,019,515.57; national guard, $648,735.95; the maintenance of prisons, $1,095,815.94, and highways, $567,173.86. The total State debt at the end of the year, of which the entire amount was funded, was $9,920,660, and the amount of the debt reduction during the year was $155,000. Since 1880 New York legislation has been directed to devising a uniform system of indirect taxation sufficient for all the State's needs; and the extent of this movement may be judged from the fact that since the passage of the original corporation law of 1880, the receipts from indirect taxation have been steadily increased from $141,127.03 to $16,236,446.99. Further recommended changes in the indirect tax laws intended to

do away entirely with the necessity of direct taxation were: To amend the Ford franchise law so as to assess corporations upon their earning capacity; to tax mortgages; to levy a tax of 10 cents on each notary certificate, and to put a tax of 10 cents per hundred dollars on the recording of all transfers of real and personal property.

Agriculture and Industries.—The principal agricultural crops for 1902 as given in the *Crop Reporter* were: Corn, 645,230 acres, 16,130,750 bushels, value $10,807,602; winter wheat, 278,196 acres, 8,033,693 bushels, $6,346,617; oats, 1,324,564 acres, 52,982,560 bushels, $19,073,722; barley, 117,867 acres, 3,359,210 bushels, $1,847,566; rye, 164,815 acres, 2,884,262 bushels, $1,672,872; buckwheat, 335,015 acres, 5,929,766 bushels, $3,498,562; potatoes, 407,082 acres, 26,867,412 bushels, $15,851,773; hay, 5.013,987 acres, 6,718,743 tons, $70,748,364; tobacco, 8040 acres, 10,050,000 pounds, $1,005,000.

Nine silk mills, three woolen mills, one cotton mill, and seventeen knitting mills were built in the State during 1902. Only Pennsylvania built more knitting mills. The production of pig iron increased over 40 per cent.—from 283,662 tons in 1901 to 401,369 tons in 1902. New York produced in 1902 10,467,784 barrels of malt liquors —about twice as much as any other State.

Railroads.—In 1902 there were in New York 8131 miles of main track and 15,033 miles of single track. In 1901 there were 14,807 miles of single track. The gross earnings from operation for the aggregate mileage of all systems in the State for 1902 were $293,347,453; the operating expenses were $204,775,365. In 1901 the figures were respectively $276,676,101 and $190,375,619. The total number of employees in 1902 on the several systems were 199,373; in 1901, 184,854.

Legislation.—The legislation enacted by the New York State legislature for 1902 was largely suggested by the governor in his annual message for that year. In two instances, however, the governor failed to carry out his programme. His recommendation to put a tax of 5 mills on mortgages, thus increasing the State revenue by $3,000,000 per annum, was rejected by the legislature; as also his proposal to submit to the people the question of enlarging the Erie Canal. Yet in the main, the governor accomplished his purposes. In his message he estimated that the entire revenues derived from indirect taxation would probably make the gross income for the current fiscal year from corporations, banks, and insurance companies, $6,100,000, as compared with $2,981,286.66 for the preceding fiscal year. As the income from indirect taxes has been increased, State expenditures have been decreased. As a result direct taxes have been decreased until for 1903 they are estimated at $748,000, as against $10,704,153.39 in 1900. Another important measure was the Krum bill, greatly enlarging the field of investments for savings banks. Bills were also passed looking toward the construction of permanent good roads. The congestion of legal business in the courts of New York and Kings counties led to a law providing for the appointment of a commission of seven persons to examine into the condition of business in the above-named courts and to suggest such measures of legislation as they deem necessary to expedite such business. Provision was also made for the shortening of the term of appeal in case of a murder trial. On April 3, 1902, Governor Odell signed the bill for the repression of anarchy. The law imposes a penalty of not more than two years' imprisonment or a fine of not more than $5000 or both on persons teaching anarchistic doctrines. It is made a misdemeanor punishable by a fine of not more than $2000 or by imprisonment for not more than two years, or by both, to publish books, newspapers, etc., anarchistic in nature; and the same penalties are provided for owners, agents, or occupants of houses harboring avowed anarchists.

Legal Decisions.—On November 11, 1902, in New York City a verdict of acquittal in the Molineux case brought to a close one of the most remarkable murder trials in the annals of the American criminal bar. The trial, or more properly, the series of trials brought to convict the prisoner, had lasted from early in 1899, had as was estimated cost the State some $400,000 and the defense $100,000, and had caused a final ruling by the New York Court of Appeals on some vexed and important questions of criminal evidence. The Court of Appeals in July rendered a decision denying the right of privacy to a young lady of Rochester, who, in 1901, had brought suit against two firms for unauthorized use of her portraits as an advertisement on flour barrels. The court's decision was that "the so-called right of privacy has not as yet found an abiding place in our jurisprudence."

The Raines Law.—Early in the year State Excise Commissioner Cullinan made reply to a number of current criticisms regarding the Raines law and its administration. Summarized, his reply was that the law produces an enormous public revenue, aggregating in five years $73,000,000; the number of liquor dealers at the beginning of 1902 was only 26,000, against 33,000 when the former law expired in 1896; granting licenses to all who pay the tax, unless they have previously violated the law, has stopped the "injustice, favoritism, corruption, partisanship" and other

evils which reigned when licenses were granted at the discretion of an excise board; furthermore "the act provides in explicit terms two means for the enforcement of the liquor tax law, one of which is the civil remedy to be exercised by the State authorities and the other is the criminal remedy, exclusively under the control of the local criminal authorities." In connection with the excise question in New York, an organization known as the Anti-Saloon League of New York State, in January made public a proposition offered with a view to the amelioration of existing conditions. The league proposed to extend the local option of the State to all cities by election districts and to take from hotels the privilege of selling on Sunday, with the object of closing resorts fictitiously called hotels. The Reform Club, of New York, after an exhaustive discussion of the subject, announced as their view that the best present solution of the problem would be the adoption of the local option scheme. Eminent clergymen of the city, including Bishop Potter and Dr. Rainsford, assumed a different attitude toward the question, demanding the legal opening of saloons during certain hours every Sunday. Dr. Lyman Abbott expressed an opinion to the effect that the question of Sunday opening should be made a matter of local option by wards. A majority of the clergy of Greater New York are strongly of the opinion that the Raines Law, which, if effectively enforced, requires absolute Sunday closing, should be strictly carried out. Mayor Seth Low and his commissioner of police, Colonel Partridge, by their publicly expressed opinions and their acts during the year conveyed the impression that they did not believe the Sunday closing law capable of complete enforcement. At the same time, they think it possible to hold the evil in check and to stop the levying of blackmail. Throughout the year, under the Low administration, the saloons kept their front doors closed on Sunday and maintained outward quiet and order.

Tunnel Franchises.—Mayor Low and the Rapid Transit Commission, after giving approval to a proposed ordinance granting a perpetual franchise to the Pennsylvania and Long Island railways for a tunnel under the North and East rivers connecting their lines and traversing Manhattan Island in New York City, discovered that the Board of Aldermen presented strong opposition to its passage. They gave as reasons, first, their unwillingness to grant a perpetual franchise which might establish a perpetual monopoly; secondly, their hostility to any franchise which did not stipulate that construction work should be performed under the eight-hour day and paid for at the prevailing rate of wages; thirdly, their wish that the subways should contain pipe galleries in which gas mains, water mains, electric wires, etc., might eventually be carried, and, fourthly, their anxiety lest the export business of New York City proper might suffer by the introduction of a system which might establish terminals at the extremity of Long Island. The Rapid Transit Commission, on their part, in reply to these objections, stated that the franchise proposed was not a perpetual franchise in reality, as it provided for a revaluation every 25 years and a readjustment at the expiration of those periods of the company's payment to the city. The commission announced that the railroad would not construct the proposed tunnel without such a franchise, and declared that the city could not construct it and lease it to the railroads as the municipal authorities could not obtain title to land on the New Jersey side of the North River. It was also pointed out that the courts had decided, with reference to the eight-hour system and the prevailing rate of wages, that the city contracts could not constitutionally be limited in such a way. The Board of Aldermen rejected the proposed ordinance and in December a revised ordinance was resubmitted. With it the mayor sent a message reinforcing his arguments on the measure and stating that the administration had made every effort to secure the changes in the charter desired by the board, with a result that somewhat better terms had been obtained. After considerable discussion and a plea for delay on the part of those who opposed the franchise, the ordinance was passed, December 16, by a vote of 41 to 36, four Tammany aldermen and several Brooklyn Democrats voting for it and only two Republicans against it. The preliminary work of the tunnel was taken up in earnest immediately after the decision of the Board of Aldermen had been announced.

New York and New Jersey Railroad Franchise.—During the consideration of the Pennsylvania Railroad tunnel project, the Board of Aldermen passed an ordinance granting to the New York and New Jersey Railroad Company the right to complete the tunnel begun several years ago by the Hudson Tunnel Railway Company. By the provisions of this franchise, electric cars will run every half-minute, connecting the New Jersey terminals of the Erie and Lackawanna roads with the elevated and surface railroad system in New York. The ordinance contained no restrictive clauses as to labor. It provided for a reassessment of the value of its privileges, at the end of 25 years, and stipulated that the city should receive from 3 to 5 per cent. of the estimated receipts. The ordinance was passed and was signed by the mayor late in December.

Assessments.—Mayor Low, in October, referred for the second time since his inauguration to the question of property assessment. In his second statement he defended the policy he had advocated, requiring property to be assessed at its true value, this being the letter of the law. According to the State Constitution the city of New York is prohibited from issuing bonds in excess of one-tenth of the assessed value of the property within it. The mayor pointed out that something must be done to meet existing conditions. "All public improvements except school buildings, and all local improvements, must shortly stop; or the State Constitution must be amended so as to enlarge the city's credit; or the city's real estate must be assessed at full value, as the law directs." The mayor's plan was adopted in connection with the assessment of property for 1903. Many took advantage of the rebate allowed to persons paying before January 1 and settled their 1903 taxes in December, 1902.

The New York City Budget.—The budget estimates for New York City, 1902, prepared by Mayor Low, show public expenditures for the year at $98,600,000. The principal items are, in round figures, as follows: Interest on city debt and sinking fund payments, $23,000,000; education, $19,000,000; police, $11,000,000; street cleaning and fire service, $5,000,000 each; and charities, including hospitals, $5,000,000. The aggregate is about $600,000 more than the tentative budget prepared by Mayor Low's predecessor, but this is accounted for by items and arrearages running over from 1901. The appropriations were increased in Mayor Low's estimate for the fire department and for hospitals and other charities. To offset this increase deductions of nearly $500,000 were made in salaries.

The Tammany Leadership.—Richard Croker, who led the Tammany forces during the campaign of 1901, declared his intention of retiring from politics shortly after the defeat of his plans. Lewis Nixon, a member of Tammany and a well known shipbuilder, was named by him as his successor. He began his administration by placing the control of Tammany's general committee in the hands of members elected by the voters in the several districts instead of members appointed by a clique. The announcement of this policy was greeted with applause by the better element of voters. In other directions Mr. Nixon demonstrated his desire to reform his organization thoroughly. Events proved, however, that the task he had undertaken was less hopeful than he had anticipated. Finally Mr. Nixon resigned, saying he could not retain his "self-respect and remain the leader of the Tammany organization; that his administration had been hampered by a 'kitchen cabinet'; that every important act of his was cabled to Mr. Croker before it became effective, and that he received orders to place certain men."

The members of Tammany received the resignation coolly and accepted it. Mr. Croker promptly denied, by cable, any interference with Mr. Nixon and declared his intention of remaining out of politics. Several changes were subsequently made in the organization of Tammany Hall, and a triumvirate consisting of Messrs. Murphy, MacMahon, and Haffen, was chosen as a sort of board of control. This experiment did not prove successful. After the election in November Charles F. Murphy, one of the triumvirate, gained recognition as leader of the organization and his sway promised to become almost as absolute as that of Mr. Croker.

Disasters and Casualties.—A storm of snow and rain swept over New York City February 21, 1902, flooding the streets and breaking down telephone and telegraph wires. Traffic was suspended and the street cleaners refused to work at night. The fall of snow was greater than in any winter since the blizzard of 1888. While the storm was still in progress, on the morning of the 22d, the armory of the Seventy-first Regiment took fire and, with its contents, was utterly destroyed. The sparks from this fire were alleged by witnesses to have started the fire at the Park Avenue Hotel, which caused the death of twenty-one persons and the injury, by burning and otherwise, of a much larger number. During an investigation which followed, there was much dispute and conflicting testimony as to the cause of the fire. According to the preponderance of evidence, the conflagration originated from sparks blown from the burning armory. This view was held by the fire marshal at the coroner's inquest, and was set forth in the verdict of the coroner's jury. On the evidence of guests of the hotel and of members of the fire department, the jury also found that the hotel was not properly equipped for the safety of its occupants. One result of this calamity was a widespread demand for better protection and more strict observance of legal requirements in the construction of so-called "fire-proof" buildings. On December 26 fire destroyed the Arbuckle sugar refinery in Brooklyn and several adjoining factories. Six firemen were buried beneath the walls. The estimated loss was $500,000. On the night of November 4 a terrible explosion of fireworks occurred in Madison Square, where thousands of people had crowded to read the election returns and watch the fireworks. Twelve people were killed and more than eighty more or less seriously injured. On the

morning of January 8 a suburban train from New Rochelle on the New Haven road, filled with people on their way to business in New York City, while standing on the tracks near the lower end of the Park Avenue tunnel, was run into by another suburban train coming from White Plains over the Harlem road. The rear cars of the New Rochelle train were demolished, fifteen people were killed and thirty-six injured, two of whom died within a few hours. The verdict of the coroner's jury found the officials of the New York Central road responsible in neglecting to insure the proper measures for safety.

Dynamite Explosion.—At noon on January 27 a terrific explosion of dynamite occurred in front of the Murray Hill Hotel, Forty-first Street and Park Avenue, New York City. Five persons were killed, hundreds of others were injured, and damage to the amount of over $1,000,000 was done to property in the neighborhood. The Murray Hill Hotel was partially wrecked, and windows were shattered in the Grand Union Hotel, the Grand Central Station, the Manhattan Eye and Ear Hospital, and many other buildings. People were thrown down in the street and the report was heard miles away. The dynamite had been stored for use in work upon the Rapid Transit Tunnel. No great damage was done to the subway, so that the contractors were able to resume work promptly. Major Ira A. Shaler, a sub-contractor, and two of his assistants were arrested, and were held responsible by a coroner's jury. Afterwards the grand jury indicted Major Shaler and six others for manslaughter. Major Shaler was killed by a falling rock soon after. None of the cases reached trial during the year.

Boycott of the Jewish Butchers.—In May, in the Jewish quarter of New York City, an agitation was carried on against the "Kosher" butchers, whose meat is inspected and certified by the rabbis in accordance with the Mosaic law. These retail butchers were accused by their customers of taking advantage of the fact that they practically had the orthodox Jews at their mercy and made their own prices. The agitation took place at the time when the price of beef and other meats had been increased throughout the country by the alleged operations of a trust. The "Kosher" butchers aroused the anger of the Hebrew community by increasing the retail price of certain meats to the extent of three cents a pound when the extra price paid by these dealers to the firms from which the meat was purchased was only one-quarter of a cent. The Jewish women led the movement against the butchers. They boycotted them, persuaded others to do the same, scattered pickets throughout the districts affected and issued circulars in which they urged those who sympathized with them not to buy meat themselves nor to let others buy. The women went so far as to seize the meat purchased by those who refused to join with them, and threw it into the streets or poured oil upon it. The agitation culminated in rioting, several thousand Jewish women taking part. The police found themselves unequal to the emergency on one or two occasions. During one disturbance six hundred arrests were made. No serious personal injuries were suffered, but a number of noisy demonstrations were continued until the agitators had gained concessions from the butchers.

Jewish Funeral Riots.—During the first week in August the funeral of Rabbi Joseph, well and favorably known among the Hebrews of the East Side in New York City, took place in the presence of many thousands of spectators, many of whom had known the deceased personally and mourned his death. It was estimated that fully 50,000 mourners followed the body in a procession through the thoroughfares most frequented by the Hebrew population. As the procession was passing the printing-press factory of Robert Hoe a disturbance began, said to have been started by some of the factory employees. Many of the factory windows were broken and the crowd attempted to force their way into the building with the intention of wrecking it. The factory workmen turned the fire hose on the assailants and drove them back. A number of persons were injured and it was with the greatest difficulty that the police restored order. During a subsequent investigation, made at the request of Mayor Low, it was ascertained that for a long time prior to the outbreak there had been a strong feeling of antagonism between the factory employees and the Jewish element residing and working in the neighborhood. The police commanders having the district in charge were severely criticised for seeming mismanagement and neglect in permitting such a large body of people as were present at the funeral to pass through the streets without a suitable escort of the uniformed force.

The New Primary Law.—In September, an election of district members of the party committees in New York City, under the new primary law, demonstrated the fact that illegal voting can be controlled when the proper authorities work in harmony. State Superintendent of Elections McCullagh, after the election, reported that 90 per cent. of the illegally registered voters lacked courage to offer their ballots. On the other hand there was ample evidence that the provision of the law, which requires a residence in a voting precinct of thirty days to gain the right

to vote, was unscrupulously violated by colonizers in the closely contested districts. In the Ninth district, in which three contestants, J. C. Sheehan, F. J. Goodwin, and W. S. Devery were candidates for the Democratic leadership, the campaign was the most picturesque and enthusiastic contest seen for many years. By a judicious application of beer, barbecues, and picnics to the voters of the district, their wives and children, Devery succeeded. It was reported that he spent $50,000 in the contest. His attempts later to gain recognition in Tammany Hall were not so successful and he was denied a seat in the Democratic State convention. The results of the primaries indicated that at least a third of the legal voters did not take sufficient interest in them to vote.

Conventions and Platforms.—The Republican State convention was held at Saratoga September 24. Among the most important acts of the convention in State affairs was the changing of the candidate for lieutenant-governor, Mr. Frank W. Higgins being substituted for Mr. Sheldon, owing to the mention of the latter's name in connection with certain trusts with which he was said to have business relations. This caused some comment as indicating Governor Odell's dominance in the Republican party of the State, Mr. Sheldon being, it was said, the choice of Senator Platt. An important State plank in the platform was that urging canal improvements and good roads, but suggesting that expenditures therefor should be deferred until the constitution was amended to admit of the issuance of long-time bonds to pay for them. In national affairs the platform gave President Roosevelt the party's cordial support and favored his election to the presidency in 1904; condemned all combinations and monopolies that tended to destroy competition, limit production or increase cost of necessaries, and favored such legislation as would suppress and prevent their organization; indorsed the administration policy in the Philippines; favored reciprocity with Cuba; declared that the integrity of the protective principle must be preserved, and praised the successful administration of Governor Odell, mentioning particularly the material reduction in the direct taxes.

The Democratic State convention, held at Saratoga on October 1, was under the control of ex-Senator David Bennett Hill and the conservative reorganizers. One of the most widely discussed acts of the convention was the refusal to recognize William S. Devery, former chief of police of New York City, as leader in the Ninth Assembly district of that city. The most conspicuous plank in the platform was the demand for government ownership of the anthracite mines, which, as indicating a "socialistic attitude" caused much comment. The platform condemned unsparingly the refusal to grant Cuba proper tariff concessions and demanded a substantial reduction of tariff, and not the mere 20 per cent. which the President professed a willingness to grant; condemned trusts, mentioning especially the beef and coal trusts; demanded the reduction of the tariff to a revenue basis; declared the policy of reciprocal trade to be the traditional Democratic policy; condemned the Philippine policy of the administration, saying that the purpose of the nation as to the ultimate government or disposal of the islands should be in harmony with American traditions and should be explicitly declared; favored the election of United States senators by the people; and arraigned in some detail the Republican administration of the State. The convention nominated Bird S. Coler for governor and C. N. Bulger for lieutenant-governor.

Elections.—At the State elections, held November 4, 1902, the entire Republican State ticket was elected except the attorney-general. The vote for governor was: Odell (Rep.), 665,150; Coler (Dem.), 656,398, giving Odell a plurality of 8803 votes. The election was of unusual interest, centering around the State policy of Governor Odell and the national policies of President Roosevelt. Resentment toward what was generally believed to be unwarrantable interference on the part of the Republican legislature at Albany with the affairs of the city exerted a tremendous influence over the result in New York City, which returned a plurality of 122,000 for Coler. Up the State the feeling was strongly in favor of Odell, largely because of his tax measures, which were expected to relieve the rural districts at the expense of New York City. The Democratic candidate for attorney-general, John Cunneen, the nominee as well of the Prohibition party, was elected.

State Officers.—For 1903: Governor, Benjamin B. Odell, elected for two years, term ending January, 1905; lieutenant-governor, F. W. Higgins; secretary of state, J. F. O'Brien; treasurer, John G. Wickser; attorney-general, John Cunneen; comptroller, Nathan L. Miller; engineer and surveyor, E. A. Bond; superintendent of banks, F. D. Kilburn, three years, term ending May, 1905; insurance commissioner, Francis Hendricks, three years, term ending February, 1903; superintendent of public instruction, Charles R. Skinner, three years, term ending April, 1903; superintendent of State prisons, Cornelius V. Collins, five years, term ending April, 1903; commissioner of agriculture, Charles A. Wieting, three years, term ending April 29, 1904—all Republicans, except Cunneen.

Court of Appeals for 1902 and 1903: Chief justice, Alton B. Parker; associate

justices, John Clinton Gray, Denis O'Brien, Edward T. Bartlett, Albert Haight, Celora E. Martin, Irving G. Vann, Edgar M. Cullen, and William E. Werner.

For Congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

NEW YORK PUBLIC LIBRARY, ASTOR, LENOX, and TILDEN FOUNDATIONS, was consolidated in 1895. It maintains two reference branches, at the Astor Building, 40 Lafayette Place, and the Lenox Building, 890 Fifth Avenue, and, in 1902, had thirteen circulation branches in various parts of the city, of which six occupy their own buildings. During that year the St. Agnes Free Library, with 10,027 volumes, and the Washington Heights Free Library, with 19,425 volumes and a fine building, were consolidated with the library as branches. The four reading rooms that had been opened in public school buildings in 1901 were closed on January 1, 1902, owing to lack of funds by which the board of education could continue their support, and their books and periodicals were distributed among the branch libraries. On March 26, 1902, the number of sites permitted to be selected for Carnegie libraries was increased from not to exceed 42 to not to exceed 50, in order to provide for additional libraries in the boroughs of Richmond and the Bronx, and the increase was approved by Mr. Carnegie. Of these sites eight had been acquired or contracted for up to October 1. From October 1, 1901, to October 1, 1902, 2,014,653 volumes were issued for home use, an increase of 151,685 over the preceding year. Of this increase, 99,920 were due to the traveling libraries, which circulated 248,791 volumes. The number of distributing agencies during the same period was 202, as against 156 the preceding year. The total number of books in the circulation department was 218,818, of which 15,986 were added during the year. The accessions to the reference department were 32,224 volumes, of which 16,464 were gifts, and 24,317 pamphlets, including 17,563 gifts. The total number of volumes on the shelves and available for use at the end of June, 1902, was 571,081, and of pamphlets 206,687. The number of readers and visitors at the two reference library buildings was 165,-011, the Astor having received 111,199, and the Lenox 53,812, an increase of about 21,000 over the preceding year. The volumes and periodicals issued to readers in both buildings, not including the use made of the open reference shelves, were 411,883, an apparent decrease of 200,000, due to the change in the methods of keeping statistics in the Astor branch. There were added 12,512 prints to the collection. Among the gifts of the year were the Sterne collection of 2375 volumes and 2442 pamphlets, mainly on economic subjects, from library of the late Simon Sterne; the library Americanus given by Henry Baldwin, of New Haven, including 1000 volumes, 5000 pamphlets, and a series of scrapbooks; and a bronze bust of George William Curtis, the work of J. Q. A. Ward.

NEW YORK STATE SUNDAY SCHOOL ASSOCIATION. See SUNDAY SCHOOL ASSOCIATION, NEW YORK STATE.

NEW YORK UNIVERSITY, in New York City, founded in 1831. The attendance in 1901-02, excluding names counted twice, was 2101, distributed as follows: College 256, graduate school 187, applied science 115, pedagogy 358, commerce 126, summer school 113, law, 665, woman's law class 36, medicine 300, veterinary 55. The faculty was composed of 212 professors and instructors. The gross income for 1902 was $467,839. During the year the school of commerce increased its curriculum from two to three years, the additional courses covering law, finance, administration, and practical accounting. In the graduate school a thesis was added to the requirements for the master's degree, and the hours for all degrees in the graduate school were doubled, making the requirements six hours of work and a thesis for the master's degree, and twelve hours of work and a thesis, which must be printed, for the doctor's. The new degree of Juris Doctor was added in law, to be given to college graduates only who complete a three-year course covering fourteen hours each week. The university in June, 1902, gave the honorary degree of L. H. M. to five of the women who serve on the advisory committee of the woman's law class. Twenty-four candidates in the school of commerce received the new degree of bachelor of commercial science.

NEW ZEALAND, a British colony in the Pacific Ocean, 1200 miles southeast of Australia. The capital is Wellington.

Area and Population.—The estimated area is 104,471 square miles. According to the census of March 31, 1901, the population was 815,820, of whom 43,101 were Maoris and 2857 Chinese. On March 31, 1902, the European inhabitants numbered 789,994. The Cook Islands, annexed to the colony in 1900, have a population of about 8000 natives and 200 Europeans. The majority of the inhabitants of New Zealand are Protestants. Primary education is free and compulsory. In December, 1901, there were 1677 public primary schools, with 131,351 pupils, 309 private schools, with 15,344 pupils, and 91 village schools for Maoris.

Government and Finance.—The colony is administered by a governor (the Earl

of Ranfurly since 1897), who is advised by a responsible ministry of eight members. The legislative power devolves upon a Parliament of two houses, the Council (45 appointed members) and the House of Representatives (74 elected members). Woman's suffrage obtains, but a woman is not eligible to a seat in either house of parliament.

The principal source of revenue is customs, and the largest item of expenditure interest on the public debt. Revenue and expenditure for fiscal years ending March 31 have been reported as follows: 1900, £5,699,618 and £5,140,127; 1901, £5,908,697 and £5,479,704; 1902, £6,152,839 and £5,895,915. The net public debt on March 31, 1902, was £51,837,631.

Industries, Commerce, etc.—The principal industries are agriculture and sheep raising. The leading crops are wheat, oats, and barley. Gold mining is important. In the fiscal year 1900 imports and exports were valued at £8,739,633 and £11,938,335 respectively; 1901, £10,646,096 and £13,246,161; 1902, £11,817,915 and £12,881,424. The larger part of the trade is with Great Britain. In the fiscal year 1901 the leading imports were: Clothing materials and clothing, £2,420,241; iron and steel goods, machinery, etc., £2,133,219; sugar, £451,522; paper, books, etc., £407,410. The principal exports were: Wool, £4,749,196; frozen meat, £2,128,881; gold, £1,439,602; grain, pulse, and flour, £1,049,399; butter and cheese, £969,731. In March, 1902, there were in operation 2235 miles of government railway and 88 miles of private lines.

History.—The New Zealand parliament was opened on August 1, 1902. The governor stated that in the Anglo-Boer war New Zealand had furnished 6700 officers and men and 6620 horses. He announced that the Commonwealth of Australia had agreed to admit New Zealand letters at the penny rate, thus making the penny system general within the empire. He announced that the legislation for creating a system of Maori councils had been favorably received and promised to be successful; that the administration of the Cook Islands was proceeding satisfactorily, and that the natives seemed perfectly contented; that the government contemplated appointing commercial agents in Great Britain, Africa, and Australia with a view to increasing the markets for the produce of the colony; that the state coal mine recently purchased would soon be in working order; that the Referendum Bill which passed one branch of the legislature at the previous session together with a new measure providing for a system of state fire insurance, would be introduced; and that the legislature would be asked to consider measures making provision for aged and retired officers in the railway service, and for preventing combinations by which the prices of food supplies are improperly raised. The governor stated that notwithstanding the heavy and unusual items of non-recurring expenditure and the large reductions made in railway charges, customs, and postage, there would be a substantial credit balance at the end of the year on account of the large increase of traffic and other business. The budget statement showed that the public debt had been increased during the year by £3,370,000, and that a new loan of £1,750,000 was proposed for public works. The total expenditures on public works for the year amounted to £2,143,200, while the estimates for the ensuing year amounted to £2,193,000. Some of the items under the latter head are £743,000 for railway construction, £335,000 for roads and bridges, and £288,000 for public buildings. In December, 1902, it was announced that the public-works policy had come to a standstill for want of funds, but relief was soon expected from the new loan which had recently been floated in London. Meanwhile the government discharged large numbers of laborers engaged on the public works, and otherwise pursued a policy of economy. It was admitted that the expenditure for public works had gone beyond legitimate bounds, and that much of it was wasteful. Dissatisfaction was expressed with the cooperative system, which, it was said, was proving a costly one to the colony by inflicting upon the taxpayers incompetent and inefficient workers. Evidence of this recently came to light in connection with a strike of government cooperative laborers—the only strike that has occurred in New Zealand for years. The affair grew out of the act of the government in putting cabmen and other incompetent employees from the cities in the railway service to work with competent men. Early in October, 1902, the parliament was prorogued. No important legislation was enacted during the session. The scheme of compulsory state fire insurance introduced by the government was regarded as impracticable, and the bill was dropped. The general elections, held November 25, 1902, resulted in a victory for the government, which secured 45 seats, the opposition gaining 25 and the independents 5. The question of continuing, reducing, or refusing licenses to sell liquor was submitted to the voters, and as a result of the women's vote the prohibitionists won in a number of districts. The total vote was: for continuing licenses, 146,291; for reducing the number of licenses, 130,145; for no license, 149,585.

Considerable dissatisfaction has been expressed with the workings of the compulsory conciliation laws. Many of the cases dealt with by the boards have been taken to the court of arbitration. It is asserted that valuable time is lost by suitors

before the conciliation board when there is an expressed determination by one party to disregard the recommendation of the board and proceed to the court. The friends of the measure admit that it has failed to lessen the previously existing antagonism between employers and employees, although they claim that it has banished strikes.

NICARAGUA, a Central American republic between Honduras and Costa Rica. The capital is Managua.

Area and Population.—The total estimated area is 49,200 square miles. The population, including uncivilized Indians, was estimated in 1900 at about 500,000. The inhabitants are mostly Indians, mestizos, mulattoes, and negroes.

Government and Finance.—The chief executive authority is vested in a president elected by popular vote for a term of four years. The president in 1902 was Señor José Santos Zelaya, who was inaugurated for his third successive term on February 2 of that year. The legislative power devolves upon a congress of one chamber elected for two years. The active army numbers 2000 men.

The monetary standard is silver, and the unit of value the peso, worth 42.8 cents on October 1, 1901, and 38.4 cents on October 1, 1902. The paper peso, the chief circulating medium, is depreciated. Revenue accrues chiefly from customs and excise. Estimated revenue and expenditure for 1900 were 6,408,000 pesos and 5,780,920 pesos respectively, and for 1901, 5,760,920 pesos and 5,758,923 pesos respectively. In July, 1901, the external debt stood at $1,332,934.

Industries, Commerce, etc.—The principal industries are cattle-raising and agriculture, and the leading crops are coffee and bananas. The estimated coffee crop in 1902 amounted to about 30,000,000 pounds. Imports and exports for 1900 are reported at 5,516,523 pesos and 6,289,483 pesos respectively. Trade is chiefly with the United States, Great Britain, France, and Germany. The railway between Managua and La Paz, 35 miles in length, connecting the two sections of the Central Railway, was completed in June, 1902, at a cost of about 32,000 pesos a mile. This line does away with transshipment at Momotombo. The length of the entire line is 160 miles.

By a presidential decree of May 28, 1902, the raising of a fund was authorized, by direct taxation on male citizens, for the construction and repair of public roads, which have always been in bad condition. In August, 1902, the government put into effect a law of June 30, 1901, regulating and defining labor in its relations with capital. The purpose of the law was to enforce steady employment and thus prevent idleness and viciousness, and to do away with the custom of employers to advance wages to laborers on a contract.

During 1902 there was considerable friction, which even threatened serious hostilities, between Nicaragua and Colombia. The trouble came about by reason of the disposition on the part of Nicaraguans to lend aid to the Colombian rebels.

NICARAGUA CANAL. See ISTHMIAN CANAL.

NICKEL. See MINERAL PRODUCTION.

NIGERIA, comprising the two British protectorates, Northern Nigeria and Southern Nigeria, extends from the eastern part of the Gulf of Guinea northward to the French Soudan. Its area is variously estimated at from 350,000 to 500,000 square miles (probably about 380,000 square miles is most nearly correct), and its population at from 25,000,000 to 40,000,000. In the south the inhabitants are degraded pagan negroes, but in the north are the Mohammedan Hausas and Fulahs, of uncertain ethnology, but comparatively high civilization. The northern boundary of Lagos to the Niger has been delimited. About the end of 1902 the work of delimiting the frontier of Northern Nigeria between the Niger and Lake Tchad was begun by an Anglo-French commission, in continuation of the work begun by the commission of 1900 pursuant to the Anglo-French convention of 1898. In the fiscal year 1901 revenue amounted to £380,894. Imports and exports in that year were valued at £1,297,116 and £1,253,706 respectively. The principal exports are palm-oil, palm-kernels, and rubber. The leading imports are cotton goods, hardware, and spirits. The importation of spirits, however, into Northern Nigeria is prohibited.

Northern Nigeria.—Throughout 1902 the British continued to extend their effective influence in Northern Nigeria, especially in the Lake Tchad region. A force of about 1000 men under Col. T. L. N. Morland occupied Bautshi on February 16, and then proceeded to Gubja and Gojibu. After some sharp fighting he subdued a number of hostile chiefs and established garrisons at Gubja and at Maiduguri, near Lake Tchad and about 20 miles from the German boundary. As the British force advanced, the French, who were in the British sphere and had killed Fad-el-Allah in 1901, retired. It was thought that by this expedition the British occupation of Bornu was made effective, and that the international convention of 1898 would thereafter be more closely observed. Colonel Morland's expedition was noteworthy

for its rapid marches, one march of 108 miles having been accomplished in five days, another of 200 miles in ten days, and another of 200 miles in eight days.

In October, 1902, it became known that the emir of Kano was making extensive preparations for hostilities against the British. It will be remembered that the emirs of Kano, Sokoto, and Gando have not acknowledged British sovereignty, but in the fall of 1902 the emir of Gando openly professed his friendship for the British. At the same time it was necessary to send a British force against the chief of Zaria, whose unfriendliness towards the administration was being fomented by the emir of Kano, which is only about 60 miles distant from Zaria. The change in the attitude of the emir of Gando was particularly gratifying to the British, since he is one of the most powerful Mohammedan rulers in Nigeria, controlling practically one-third of the Hausa states; and since he is under the influence of the emir of Sokoto it was thought that he might persuade that powerful chief to acknowledge British authority. Peace in Northern Nigeria was particularly desired in the latter part of 1902, since the Anglo-French commission was soon to begin its work of fixing the boundary with the French Soudan. But at the end of the year hostilities seemed impending; and an expedition against the emir of Kano was in preparation. About this time word came that the emir of Sokoto had died in October, and that the new emir was better disposed toward the British than his predecessor. In 1902 the seat of administration in Northern Nigeria was established in the newly built town of Zunguru. In that year it was stated that the slave traffic had been reduced to a minimum.

Southern Nigeria.—In December, 1901, an expedition under Col. A. F. Montanaro was dispatched against the Aro tribes for their attack upon Obegu as well as for their inhuman practices. The expedition met considerable resistance and some sharp fighting was reported, but early in the spring of 1902 the campaign was successfully completed. Indeed, in 1902 affairs in the protectorate decidedly changed for the better. Besides subduing the Aros, the British abolished the slave trade and established several new administrative districts and a number of military posts.

NOBEL PRIZES, in accordance with the conditions of the fund left by Dr. Alfred Bernhard Nobel, the Swedish chemist and inventor, were awarded December, 1902, for that year for each of the stipulated objects. The prize in physics was divided between Professors Lorenz and Zeeman, of Holland, in recognition of their work on the subject of radiation; in chemistry, to Professor Emil Fischer, of Berlin, for distinguished researches; in medicine, to Major Ronald Ross, of the Liverpool School of Tropical Medicine, for his investigations in the mosquito-malaria theory; in literature, to Professor Theodor Mommsen, of Berlin, in recognition of his services in historical study; and in the work for the promotion of peace, to Professor Friedrich von Martens, of St. Petersburg, the eminent authority on international law, who was instrumental in bringing about the Hague Conference.

NORMAL SCHOOLS. During the years 1900-1901, the public normal schools of the United States numbered 170, a decrease of two from the previous year, while the number of students decreased from 47,421 to 43,372. Of the total enrollment in normal departments, 1632 were colored, as against 2707 in the preceding year. The number of instructors employed in 1900-01 was 2232, of whom 1269 were women. In the previous year 2171 teachers were employed, 1236 being women. Of the number graduated in 1901, 1583 were men and 7770 women, as against 1851 men and 7221 women for 1900. The amount appropriated by States, counties, and cities, for the support of normal schools during 1900-01 was $3,068,485, as against $2,769,003 for the previous year. The number of private normal schools decreased from 134 to 118, and the enrollment from 22,172 to 20,030. The colored students enrolled in private normal schools numbered 2250 in 1899-1900 and only 1293 in 1900-01. The following table shows the number, total attendance and total income of normal schools, public and private in the United States for the school year 1900-01:

States and Territories.	Number of Schools.		Total Attendance.		Total Income for 1900-1901.	
	Public.	Private.	Public.	Private.	Public.	Private.
NORTH ATLANTIC DIVISION.						
Maine	6	.....	1,075	.....	$36,882	.....
New Hampshire	1	.....	122	.....	10,600	.....
Vermont	3	.....	233	.....	16,400	.....
Massachusetts	10	3	1,888	207	214,342	$3,000
Rhode Island	1	.....	209	.....	58,500	.....
Connecticut	4	.....	631	.....	30,000	.....
New York	16	1	5,426	593	541,937	.....
New Jersey	3	.....	829	.....	78,200	157,263
Pennsylvania	15	2	4,888	230	466,555	2,300

States and Territories.	Number of Schools.		Total Attendance.		Total Income for 1900–1901.	
	Public.	Private.	Public.	Private.	Public.	Private.
SOUTH ATLANTIC DIVISION.						
Delaware	.....	.....	.....	.....	.....	.....
Maryland	1	3	421	71	26,279	2,650
District of Columbia	2	2	198	32	.....	2,000
Virginia	3	4	271	136	221,339	9,269
West Virginia	7	2	1,250	177	94,400	5,063
North Carolina	6	4	1,042	360	91,368	22,790
South Carolina	1	5	231	120	52,392	9,133
Georgia	3	5	677	260	56,150	17,470
Florida	2	2	107	60	20,185	6,550
SOUTH CENTRAL DIVISION.						
Kentucky	3	8	289	787	8,275	31,761
Tennessee	1	8	550	1,049	70,000	29,675
Alabama	5	2	769	76	60,083	191,403
Mississippi	5	3	185	145	4,100	24,675
Louisiana	2	.....	486	.....	23,530	.....
Texas	4	2	1,260	206	121,185	1,050
Arkansas	1	4	58	311	10,648	6,900
Oklahoma	4	.....	664	.....	67,989	.....
Indian Territory	.....	.....	.....	.....	.....	.....
NORTH CENTRAL DIVISION.						
Ohio	4	9	422	4,076	280	77,268
Indiana	2	9	1,372	4,480	103,216	122,672
Illinois	5	8	2,593	2,115	122,248	17,500
Michigan	3	2	1,758	172	145,203	826
Wisconsin	8	2	2,700	65	235,108	9,664
Minnesota	5	2	1,318	44	116,040	7,809
Iowa	4	9	2,256	1,319	108,306	14,071
Missouri	4	6	2,080	1,019	230,055	19,145
North Dakota	2	1	407	35	28,825	.....
South Dakota	3	1	554	87	60,129	4,963
Nebraska	1	3	706	1,135	31,700	12,960
Kansas	1	4	197	455	68,750	25,080
WESTERN DIVISION.						
Montana	1	.....	66	.....	17,075	.....
Wyoming	.....	.....	.....	.....	.....	.....
Colorado	1	1	171	183	45,400	.....
New Mexico	2	.....	76	.....	35,950	.....
Arizona	2	.....	53	.....	18,303	.....
Utah	1	.....	148	.....	8,460	.....
Nevada	.....	.....	.....	.....	.....	.....
Idaho	2	.....	198	.....	15,650	.....
Washington	2	.....	292	.....	34,000	.....
Oregon	4	.....	395	.....	35,420	.....
California	4	1	1,851	25	173,317	1,050
RECAPITULATION.						
North Atlantic Division	59	6	15,301	1,080	1,453,416	162,563
South Atlantic Division	25	27	4,197	1,216	562,113	74,905
South Central Division	25	27	4,261	2,574	365,810	285,464
North Central Division	42	56	16,363	15,002	1,249,860	311,597
Western Division	19	2	3,250	208	383,575	1,050
United States	170	118	43,372	20,080	$4,014,774	$835,579

NORRIS, Frank, an American novelist, died October 25, 1902, in San Francisco, Cal. He was born in Chicago, Ill., in 1870, and in 1885 removed with his family to San Francisco. In 1887 he went to Paris to study art, but after two years decided to give up painting for literature; he then returned to the United States and pursued studies at the University of California and later at Harvard. *Yberville,* a story of Spanish life in old California, appeared in 1891, but his first story to attract general attention was *McTeague,* of which he wrote the greater part while at Harvard. It is a striking story of the ultra-realistic style, but is not so pleasing as the no less imaginative *Moran of the Lady Letty* and *Blix,* which shortly followed. At the time of the Uitlander insurrection he visited South Africa as war correspondent of the San Francisco *Chronicle.* During 1896 and 1897 he edited the San Francisco *Wave,* and then joined the staff of *McClure's Magazine* in New York, for which he acted as correspondent in Cuba in 1898. Upon the establishment of the publishing house of Doubleday, Page & Co., he accepted in it the position of literary adviser, which he held until his death. In 1901 appeared *The Octopus,* the first novel of a projected trilogy, the unifying theme of which was to be the course of the wheat through the battles waged over its growth, distribution, and consumption. *The Octopus* was highly praised by some critics and declared to be worthy of Zola, upon whose realism and that of Balzac and some of the Russians, the younger author

seems chiefly to have fed. *The Pit* (1903) is successful as a story of the market, but either because the theme does not offer equal opportunities, or because the author was less intimately acquainted with the ground, it does not quite maintain the level of *The Octopus*. *The Wolf*, if it had been destined to reach completion, although the scene in a famine-stricken town of Europe was yet further from the novelist's grasp, might well, as a powerful narrative, have proved an adequate climax to the trilogy.

NORTH CAROLINA, a South Atlantic State of the United States, has an area of 52,250 square miles. North Carolina was one of the original thirteen States. The capital is Raleigh. The population in 1900 was 1,893,810, and in June, 1902, as estimated by the government actuary, 1,950,000. The populations of the two largest cities in 1900 were: Wilmington, 20,976; and Charlotte, 18,091.

Finance.—The balance in the treasury of the State of North Carolina December 1, 1901, was $53,786.57. The total receipts during the fiscal year were $1,924,134.34, the expenditures $1,866,640.32, and the balance on November 30, 1902, $111,280.59. The main items of revenue and the amounts derived therefrom were the taxes on real and personal property, $826,679.11; railroad taxes, $129,035.01; dividends from railroad stock owned by the State, $210,014. The total debt at the end of the year was $6,527,770, of which $6,289,150 was funded. Owing to the large appropriations made by the legislature in 1901, for the enlargement of insane asylums, and for bringing the public schools up to the constitutional requirements of four months in each district, the State revenue was inadequate to the disbursements, and pending the next meeting of the legislature, the council of State secured a temporary loan of $200,000. To pay off this floating indebtedness and to continue the improvements begun, a bond issue of $500,000 was recommended by the governor. The report of the State tax commission, appointed by the legislature recommended means for levies on personal property at its true value, a large amount of which escaped, and that a tax should also be levied for State purposes on distilleries, rectifying establishments, and saloons. Heretofore a tax on saloons had been levied for use of the school fund only. Since the enactment in 1899 of the law taxing insurance companies, there has been collected from the insurance department for 1899, $92,851.21; for 1900, $91,072.92; for 1901, $132,034.03; and for 1902, $140,000 (estimated).

Agriculture.—The principal field crops for 1902, as given by the *Crop Reporter*, were: Corn, 2,706,682 acres, 37,622,880 bushels, value $22,573,728; winter wheat, 576,558 acres, 3,055,757 bushels, $2,811,296; oats, 238,143 acres, 3,024,416 bushels, $1,542,452; potatoes, 24,890 acres, 1,592,960 bushels, $1,067,283; hay, 132,135 acres, 190,274 tons, $2,330,856; tobacco, 219,263 acres, 142,520,900 pounds, $15,677,304.

According to the Census Bureau there were 2683 cotton gins in the State, which up to December 13, 1902, had ginned 517,068 bales. The remainder of the crop was estimated at 28,232 bales. This would make a total crop of 545,300 bales, worth approximately $24,538,500. No other State except Texas had so large a yield of rice per acre as North Carolina. The farm animals in the State January 1, 1903, as reported by the Department of Agriculture comprised 162,438 horses, valued at $11,558,399; 138,048 mules, $11,808,815; 201,460 milch cows, $3,990,923; 307,772 other cattle, $3,029,152; 220,682 sheep, $395,749; and 1,071,154 swine, $5,482,460. A notable movement was the investment of Northern capital in many of the textile mills. Seven cotton mills with 103,000 spindles and 3248 looms, and four knitting mills were built in 1902.

Conventions and Platforms.—The Democratic State convention was held at Greensboro on July 16. In the platform the people of the State were congratulated on the adoption of a suffrage amendment to the constitution, and the party pledged itself to secure a fair and just system of taxation, also the improvement of the free public school system and the main roads throughout the State. The Kansas City platform was reaffirmed, the trusts and the tariff were denounced, and a call was made for primary elections to nominate United States senators. The creation of an Appalachian park was urged.

The Republican State convention was held at Greensboro on August 28. The platform indorsed President Roosevelt, called for greater indulgence toward ex-Confederate soldiers, and denounced the Democratic State administration. It said, furthermore: "We declare that when the constitutional amendment was adopted by the people of North Carolina, two years ago, it passed out of the realm of politics, and that if Governor Aycock, Senator Simmons and others keep faith with the people in the pledges then made, there can be no such thing as a race issue in the present campaign."

Elections.—At the regular biennial State election, held November 4, 1902, the officers voted for were chief justice of the Supreme Court and superintendent of public instruction. The Democratic candidates were elected by a large plurality, the vote for justice of the supreme court being: Clark (Dem.), 132,239; Hill (Ind.), 71,275, giving Clark a plurality of 60,964. This was the first election held since the

suffrage section of the new constitution went into effect. A disagreement between the white Republicans and the negro Republicans tended to increase the Democratic majority, both by cutting down the Republican negro vote, and by driving negroes into the Democratic ranks. The negroes claimed that they had not had sufficient recognition at the Republican State convention, and gave a lukewarm support to the regular Republican nominees. One remarkable feature of the balloting was the evident growth of an independent sentiment, as shown by a considerable scratching of the ballots. The machine politicians look upon this latter development with considerable anxiety. The shrewdest of them see in it a warning that the doubtful men must be kept off the lists of nominees in future elections. The better element gave indications of a desire to strengthen the growing business interests of the State by supporting men of greater ability and character in politics than has heretofore been the case. A close observer of the political situation declared that, in North Carolina, the present aspect is "better than it has been for years," and that "the prospect of honest and decent politics in the future is good." The State legislature for 1903 will consist of 44 Democrats, 5 Republicans and 1 Independent Democrat in the senate, and 100 Democrats, 17 Republicans and 3 Independent Democrats in the house.

State Officers.—For 1902 and 1903: Governor, C. B. Aycock, elected for four years, term ending January, 1905; lieutenant-governor, W. D. Turner; secretary of state, J. B. Grimes; treasurer, B. R. Lacey; auditor, B. F. Dixon; attorney-general, R. D. Gilmer; superintendent of education, J. Y. Joyner; commissioner of agriculture, S. L. Patterson; commissioner of insurance, J. R. Young—all Democrats.

Supreme Court for 1902: Chief justice, David M. Furches; associate justices, Walter Clark, Walter A. Montgomery, Robert M. Douglas, and Charles A. Cook. For 1903: Chief justice, Walter Clark; associate justices, Walter A. Montgomery, Robert M. Douglas, Henry G. Conner, and Platt D. Walker—all Democrats.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

NORTH DAKOTA, a northwestern State of the United States, has an area of 70,795 square miles. The capital is Bismarck. The Territory of Dakota was organized March 2, 1861, and on November 2, 1889, was divided to form the two States of North Dakota and South Dakota. The population of North Dakota in 1900 was 319,146, and in June, 1902, as estimated by the government actuary, it was 346,000. The populations of the two largest cities in 1900 were: Fargo, 9589; Grand Forks, 7652.

Finance.—The balance on hand in the treasury of the State of North Dakota on January 1, 1902, was $460,962.35. The total receipts of the treasury during the year were $2,125,232.24. The main items of revenue were taxes from counties, $832,319.10; sale of endowment lands, etc., $598,264.29; fees of departments, $293,013.23; interest on endowment funds, $197,815.62; leasings, etc., $68,683.36. The total expenditures for the year were $1,915,785.34, leaving a balance on hand on December 31, 1902, of $670,409.35. The total debt of the State at the end of the year was $682,300, all of which was funded. The debt was reduced during the year 1902 by the amount of $153,000. A permanent sinking fund was established during the year for the retirement of the State debt as it shall become due. The taxes from counties was considerably smaller for 1902 on account of the sale of State lands having delayed the collections from counties. The assessed valuation of the State for the year 1903 was estimated at $100,000,000.

Agriculture.—The principal field crops of North Dakota for 1902, as given by the *Crop Reporter*, were as follows: Corn, 82,700 acres, 1,604,380 bushels, value $721,971; spring wheat, 3,954,229 acres, 62,872,241 bushels, $36,465,900; oats, 766,599 acres, 29,437,402 bushels, $7,948,099; barley, 501,948 acres, 15,861,557 bushels, $5,710,161; potatoes, 23,725 acres, 2,491,125 bushels, $822,071; hay, 135,420 acres, 224,797 tons, $825,005; flaxseed, 2,160,000 acres, 15,552,000 bushels, $16,018,560. The amount of flaxseed grown exceeded the yield for all the rest of the United States. According to the Department of Agriculture, the farm animals in the State, January 1, 1903, comprised 358,770 horses, valued at $25,139,076; 7032 mules, $567,056; 166,665 milch cows, $5,478,279; 570,956 other cattle, $12,788,267; 827,781 sheep, $2,462,979; and 175,403 swine, $1,783,849. One of the most notable features of the year was the opening of coal mines throughout the western part of the State. It was known that the entire western half of the State was underlaid with a bed of lignite, but it required the 1902 coal famine to stimulate the invention of profitable methods of extracting it. The production in 1895 was 38,997 tons; in 1901, 166,601 tons; in 1902, 296,800 tons. The value of the 1902 output was approximately $500,000. It was thought that these beds would be of great value in the development of irrigation in the arid portions of the State. The production of clay products in 1901 amounted to $76,708.

Conventions and Platforms.—The Republican State Convention was held at Fargo on July 23. The platform included a glowing tribute to President McKinley. The

State adminstration was indorsed, the attitude of State representatives in Congress was approved and a demand was made for a reform of the primaries.

The Democratic State Convention was held at Fargo on August 1. In addition to reiteration of the principles of the party and an indorsement of previous party platforms, the 1902 platform favored the direct election of United States senators, a primary election law, and equitable taxation of corporations. The Republican party was condemned for being dominated by railroad interests, and government by injunction was denounced.

Elections.—At the regular biennial State election, held November 4, 1902, a full Republican State ticket was elected. The vote for governor was White (Rep.), 31,621, and Cronan (Dem.), 17,566, giving the Republican candidate a plurality of 14,055. The State legislature for 1903 will consist of 117 Republicans and 23 Democrats.

State Officers.—For 1902: Governor, Frank White; lieutenant-governor, David Bartlett; secretary of state, E. F. Porter; treasurer, D. H. McMillan; auditor, A. N. Carlbloom; attorney-general, O. D. Comstock; superintendent of education, J. M. Devine; commissioner of agriculture, R. J. Turner; commissioner of insurance, Ferdinand Leutz; commissioner of public lands, D. J. Laxdal—all Republicans. For 1903: Governor, Frank White (elected for two years, term ending January, 1905); lieutenant-governor, David Bartlett; secretary of state, E. F. Porter; treasurer, D. H. McMillan; auditor, H. L. Holmes; attorney-general, C. N. Frich; superintendent of education, W. L. Stockwell; commissioner of agriculture, R. J. Turner; commissioner of insurance, Ferdinand Leutz; commissioner of public lands, D. J. Laxdal (term expires August, 1903)—all Republicans.

Supreme Court for 1902 and 1903: Chief justice, Alfred Wallin (in 1902), N. C. Young (in 1903); associate justices, N. C. Young (in 1902), J. M. Cochrane (in 1903), and D. E. Morgan—all Republicans.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

NORTHWEST TERRITORIES. A political division of the Dominion of Canada, composed of the following districts: Assiniboia, Saskatchewan, Alberta, Keewatin, Athabasca, Mackenzie, Ungava, and Franklin. The total area is 2,497,427 square miles, and the population, which, according to the census of 1901, was 158,940, is now estimated at 200,000, the influx of settlers during 1902 having been unusually large. Capital, Regina, in the district of Assiniboia. The revenue and expenditure for the year ending December 31, 1901, were $545,215 and $544,261 respectively. The trade and commerce of the territories, though as yet only beginning to be developed, were in a more prosperous condition in 1902 than ever before. The exports for the territories and Yukon for the fiscal year 1902 were $15,267,135, as against $15,435,612 in 1901; and the imports for the same fiscal year were valued at $4,511,019 as compared with $4,259,882 in 1901. The territories are administered by a lieutenant-governor and an executive council of three selected from the assembly, which consists of 31 members elected by popular vote. In the Dominion Senate the territories have two members, and six in the House of Commons. Stock raising and farming were, until 1902, unimportant; but the large increase of settlers during 1902 has changed prospects in this respect, especially in Alberta. In the northwest, including Manitoba, it is officially estimated that there are 570,000 square miles of wheat-growing lands, and 780,000 square miles fit for the growth of barley and oats. A considerable percentage of the 25,000 Americans who have entered Canada during the fiscal year 1902 have settled in the territories, yet the opinion of special inquirers is that 40 per cent. of the actual American immigrants are unrecorded, having trekked directly across the line without giving their names at ports of registry on the railway lines. Yukon, which at the close of 1902 was estimated to have a population of 30,000, had, in 1902, an estimated output of $14,000,000, as compared with $24,000,000 for the previous year, and industrial conditions of living in Dawson City are reported to be not so good as in 1901, owing to the overcrowding of the labor market. On May 14, it was announced in Winnipeg that American and Canadian capitalists had purchased 1,100,000 acres of farm lands in Assiniboia and Saskatchewan, and that through this the new Canadian Northern Railway was to run, thence to Edmonton and on to the Pacific Coast. The Haultain government was sustained at the general elections. The enlargement of the Canadian National Park at Banff, Alberta, was provided for at the last session of the Dominion Parliament, so that the entire area thus reserved is 5732 square miles, as compared with the American Yellowstone Park of 3000 square miles.

NORTHWESTERN UNIVERSITY, Evanston, Ill., chartered in 1851. The registration on November 1, 1902, deducting duplicates, was 2875, distributed as follows: College of liberal arts, 686; law, 171; medicine, 605; oratory, 102; dental school, 615; divinity, 152; music, 357; pharmacy, 206; graduate schools, 46. The faculty numbered 285. The total value of the college property was $6,761,249, and

the income $1,133,511. The library contained 68,325 bound volumes and 36,000 unbound. On January 21, Edmund Janes James was elected to the presidency, and he was formally installed on October 19-21. The law school, dental school, and school of pharmacy took possession of their new buildings in Chicago in October. During the year the courses of study leading to the baccalaureate degree were rearranged on a more liberal basis, reducing the requirements in languages and inserting a group of sciences and a group of studies including history, economics, and philosophy, from each of which the student is required to select one.

NORWAY, a kingdom of northern Europe, occupying the western portion of the Scandinavian Peninsula, has an area of 124,445 square miles, and a population, at the decennial census of December 3, 1900, of 2,239,880, an increase for the decade of 238,963. Christiania, the capital and largest city had a population (1900) of 227,626. The second city in size was Bergen, with a population of 72,251. The Evangelical Lutheran, the state church, receives an endowment from the state, and its clergy are nominated by the king. There is a well-organized school system, and education is compulsory. The University of Christiania was attended in 1899 by 1400 students.

Government and Finance.—The executive power is vested in the king, who is also sovereign of Sweden. He exercises his authority through a council of state, composed of two ministers of state and seven or more councilors, who are also responsible heads of departments. The legislative authority is vested in the *Storthing*, composed of 114 members elected by indirect suffrage, which divides itself for legislative purposes into an upper and lower chamber, known respectively as the *Lagthing* and the *Odelsthing*. The reigning sovereign, Oscar II., succeeded to the thrones of Norway and Sweden in 1872. There is a common secretary of foreign affairs for the two kingdoms, and common diplomatic and consular services, but otherwise the countries are entirely independent of one another.

The monetary standard is gold, and the unit of value the krone, valued at 26.8 cents. The revenue and expenditure balanced in 1901 at 99,641,070 kroner, and in 1902 at 97,300,000. The principal sources of revenue are customs (35,000,000), income and excise taxes, and railways. The largest items of expenditure are for state railways, church and education, and army and navy. The civil list amounts to 592,032 kroner. The national debt in 1901 was 228,734,200 kroner.

Army and Navy.—Military service is compulsory, and the army is raised chiefly by conscription, all able-bodied men over twenty-two years old being liable for service. The troops of the line number 900 officers and 30,000 men, although no more than 18,000 men are actually under arms at any one time. The navy, like that of Sweden, maintained solely for coast defense, consists of 4 modern iron-clads, 4 monitors, a number of gunboats, and an effective torpedo flotilla.

Industries, Commerce, etc.—Of the total area of Norway, 75 per cent. is unproductive, 22 per cent. consists of forest lands, and only 3 per cent. is under cultivation. Practically no agricultural products are raised for export, the production being insufficient even to supply the home market. Animal products, however, are important, and constitute the chief item of export. The total value of fisheries in 1899 amounted to 24,291,000 kroner. The forest products are of considerable value, and the recent activity in mining development promises to increase greatly the value of the mineral output, which has hitherto been of little importance. The imports in 1901, consisting largely of food-stuffs, coal, machinery, and textiles, amounted to 287,200,000 kroner, and the exports to 165,100,000 kroner (172,946,400 kroner in 1900). The prinicpal items of export were: Wood and manufactures of wood, 62,400,000 kroner; live animals and animal products, 57,200,000 kroner; and paper and paper products, 10,800,000 kroner. The foreign trade is largely with Great Britain, Germany, Sweden, Russia, United States, and Netherlands. The total length of railways in operation in Norway in 1900 was 1230 miles, all but 111 miles of which were worked by the state. The tonnage of the Norwegian merchant marine, according to Lloyd's *Register* for 1902-03, was 1,632,757, being exceeded in extent by that of Great Britain, the United States, and Germany only.

A new railway which will run from Mo, 300 miles north of Christiania, to the iron ore fields 18 miles distant, was begun in the spring of 1902. It was planned and constructed by American engineers for a London corporation, and is said to be the first American-built railway in Europe.

History.—On April 16, 1902, Herr J. W. C. Steen, who had been premier of Norway since 1898, handed in the resignation of himself and his colleagues. The king at once called on Herr Berner, president of the Storthing to form a new ministry, but he was unable to do so, and Herr O. A. Blehr was then called upon and succeeded in doing so. The ministerial crisis was precipitated as a result of the long existing trouble with Sweden over the question of a separate consular service. Norwegian merchants have for years declared that Swedish consuls were partial to Swedish commercial houses and that this constituted a serious impediment to the development

of Norwegian trade. Herr Steen, who had been the Liberal leader for a decade, was made premier in 1898 on the supposition that he would press Norwegian demands for a separate consular service. This he failed to do, and the dissatisfaction with his policy led to his downfall. In the spring of 1902 a joint Norwegian-Swedish commission, appointed on the initiative of Sweden, to consider the consular question began holding its sessions alternately in Christiania and Stockholm. Premier Blehr announced in October at the opening of the Storthing that the joint commission had completed its work, and that negotiations based on its investigations had been opened beween the two governments.

The activity of Russia in Finland—the "Russification" of that region—has created no little anxiety in both Norway and Sweden, as the enormous strategic importance it would be to Russia to possess northern Norway and thus obtain a foothold on the North Sea is very evident. That Russian statesmen entertain the hope of some day acquiring this region there can be little doubt. Mr. Edmund Gosse, writing in the London *Times*, says that it is now pretty universally realized in both Sweden and Norway that Russia's evident desire to foment dissensions between the two Scandinavian nations has this purpose, or a similar one in view, and that this realization of a common danger has brought the allied countries nearer together than ever before. They are not willing to allow Russia to play off their "family discords" to the detriment of Scandinavian sovereignty. During the year it was also announced that Björnstjerne Björnson, the leader of the radical political faction in Norway, that has been not only anti-Swedish, but even pro-Russian, had declared himself in favor of the movement looking toward pan-Scandinavian neutrality. His change of position was undoubtedly due to suspicion of Russia's policy in Finland. The movement which has already received the favorable vote of the Storthing and the support of Premier Blehr, was thought to be greatly strengthened by the declaration of the Björnson party in its favor.

NOTRE DAME, UNIVERSITY OF, at Notre Dame, Ind., founded in 1842, had, in 1902, a faculty of 70 instructors and 872 students, including 524 in the collegiate and 348 in the preparatory department. The college property was valued at $2,700,000. The library contained 60,000 volumes. During 1902 all the college buildings were equipped with a new heating system and electricity was substituted for steam power. An electric-light plant, a bakery, and a pharmacy laboratory were completed. The college courses were revised and preparations made for special work in chemistry. A branch was established at Portland, Ore., under the name of Columbia University.

NOVA SCOTIA, a province of the Dominion of Canada, with an area of 20,600 square miles, and a population, according to the census of 1901, of 459,574, as against 450,396 in 1891, an increase of less than 2 per cent. Capital, Halifax; population, 40,787 in 1901. The number of public schools at the end of the fixed year of 1901 was 2387, with a total enrollment of 98,410. The schools are maintained partly by government grants and partly by municipal aid.

Government and Finance.—The province is administered by a lieutenant-governor assisted by a responsible ministry. There are two legislative chambers, a council of 20 members, and an assembly of 38 members elected for five years. In the Dominion Parliament the province is represented by 10 members in the Senate and 18 in the House of Commons. The revenue and expenditure, respectively, for the fiscal year 1901, were $1,090,229 ($1,014,123 in 1900), and $1,088,926 ($937,261 in 1900) respectively. The liabilities of the province on September 30, 1901, were $3771.

Industries, Commerce, etc.—Mining is the chief industry, and coal the largest mineral product, being far greater than that of any other Canadian province. In the fiscal year 1901 it was 3,625,365 tons of 2240 pounds each, as against 3,238,245 tons in 1900. The output of gold for the same year was 30,537 ounces, as against 30,399 ounces for 1900. The plant of the Dominion Iron and Steel Company at Sydney, Cape Breton, is rapidly approaching completion. The trade of the province for the fiscal year 1902 was in excess of that of the previous year, the exports being $14,978,222, as compared with $12,720,343 in 1901, and the imports $12,510,752, as compared with $12,146,882 in 1901. The Nova Scotia legislature was opened on February 13. Reference was made to the loyalty of the province, as manifested on the occasion of the visit of the Prince and Princess of Wales, and to the completion of the Midland Railway. A steamer service along the eastern shore between Halifax and Canso has been decided upon, the Dominion and provincial governments having agreed to subsidize it.

OATS. As stated by the United States Department of Agriculture the world's crop of oats for 1901 was as follows.

Countries.	Bushels.	Countries.	Bushels.
United States	736,809,000	Belgium	34,288,000
Russia	624,097,000	Roumania	16,540,000
Germany	485,716,000	Netherlands	16,000,000
France	213,604,000	Italy	15,000,000
Austria-Hungary	190,942,000	Spain	12,000,000
United Kingdom	175,816,000	Bulgaria	8,000,000
Canada	121,476,000	Africa	7,750,000
Sweden	56,971,000		
Denmark	30,900,000		
Australasia	32,110,000	Total	2,777,119,000

The crop of 1902 in the principal oat-growing regions of the United States was as follows:

States.	Acreage.	Bushels.	Dollars.
New York	1,324,564	52,982,560	19,073,722
Pennsylvania	1,233,868	45,036,182	15,312,302
Texas	896,869	20,837,361	10,195,607
Ohio	1,129,192	46,409,791	14,851,133
Michigan	1,011,031	40,340,137	13,312,245
Indiana	1,371,912	48,565,685	13,598,392
Illinois	4,070,303	153,450,423	42,966,118
Wisconsin	2,381,900	95,037,810	28,511,343
Minnesota	2,109,223	82,259,697	22,210,118
Iowa	4,063,138	124,738,337	31,184,584
Missouri	855,882	27,816,165	7,788,526
Kansas	941,168	31,529,128	9,458,738
Nebraska	1,795,422	62,121,601	15,530,400
United States	28,653,144	987,842,712	303,584,852

The division of foreign markets reports the exports of oats in 1902 as follows:

Countries to which Exported.	Bushels.	Dollars.	Countries to which Exported.	Bushels.	Dollars.
British South Africa	3,099,563	1,430,157	Netherlands	170,540	69,401
United Kingdom	2,708,394	1,021,288	Germany	69,979	26,643
France	1,767,712	649,645	Belgium	49,957	21,315
Philippine Islands	932,262	371,189	Other countries	133,117	63,563
Cuba	593,007	304,972			
Canada	249,795	99,035			
British West Indies	196,813	96,030	Total	9,971,139	4,153,238

The imports in 1902 amounted to 25,812 bushels (valued at $12,085), principally from Canada. In studies on the composition of oats the Maine Experiment Station found that there is not so great a difference in the composition of light and heavy oats as has been usually supposed, and that their food value is about the same. Experiments with oats at the Kentucky Experiment Station led to the conclusion that varieties yielding 300 pounds or more of protein per acre and having a protein content of over 17 per cent., are the best for feeding purposes. It was observed that in general the percentage of protein in the dry matter, as well as the quantity of dry matter, increased as the plants reached maturity. In experiments conducted for five years in Germany by Wilfarth and Wimmer to study the effect of potash on oat plants, it was found that by the application of potash the quantity of water transpired per gram of dry matter produced was increased. This is explained by the checking of growth when the potash supply is exhausted while transpiration continues. It was found that under normal conditions 460 grams of water were transpired for each gram of dry matter produced by the entire plant. For each gram of potash taken up by the plant 29 grams of starch were elaborated. The average results show that for each gram of potash contained in the oat plant there were present 49 grams of starch. It is calculated that one kilogram of potash is required to produce 100 kilograms of dry matter in the entire oat plant. At the North Dakota Station it was observed that in 1899 oats required 89 days and 5525.9 heat units to mature, and in 1900, 92 days and 5847.3 heat units. The heat units are found by multiplying the mean temperature of the growing period by the number of days of the same period. The records of this station for a series of years show that oats require in that region from 88 to 102 days to mature. At the experiment station at Ottawa, Canada, the growing of oats after different crops, resulted in the best yields after horse beans. The smallest crops of oats were obtained after millet, flax, and soy beans. At the Ontario Station seed-oats obtained from varieties sent to the Missouri Station four years ago, were compared with seed from the same varieties grown continuously at the former station. The Missouri seed produced the largest

yield, and the Ontario seed the heaviest grain. The results of experiments in continuous seed selection were largely in favor of large, plump seed as regards both the yield and the weight of the grain. Von Seelhorst found that rolling oats about May 1 when the plants were about 15 centimetres high, had a tendency to prevent lodging by retarding the growth of the crop, due to the decrease in nitrification in the compressed soil, and by giving the roots a better chance to take a firm hold. Observations by the same investigator on the relation of different crops to the water content of the soil led to the conclusion that oats are not a suitable crop to be followed by winter cereals on account of the large quantity of plant food removed from the soil and especially on account of the heavy withdrawal of soil moisture. Huntemann, in Germany, found that in grading seed oats by means of a centrifugal machine, the second grade seed in a particular case gave the best returns. This was due to the fact that in the variety under test a large percentage of kernels had attached to them secondary smaller kernels and these combined kernels were thrown by the machine into the first grade (i.e., the heavier) seed, although they did not belong there. On the whole, the selection of seed oats with the machine was found profitable.

OBERLIN COLLEGE, Oberlin, O., founded 1833, had in 1901-02 a total student enrollment of 1492, distributed as follows: Preparatory, 340; college, 580; special, 36; theology, 33; music, 505. The faculty numbered 84. The number of bound volumes in the college library was 69,000, and of pamphlets 110,000. The endowment reached $1,576,153, and the gross income for the year was $135,122. Gifts received during the year included $386,890 for endowment and equipment, and $13,000 for immediate uses. Rev. Henry Churchill King, D.D., formerly dean of the college, was made president, and entered upon his duties in 1902.

OBOCK, a French colony in Somaliland (*q.v.*).

OCHILTREE, Thomas P., a popular figure in American public life, died November 25, 1902, at Hot Springs, Va. He was born in 1840, in Nacogdoches Parish, Tex. At the age of fifteen he enlisted in the Texas Rangers and saw service against the Indians. He fought in the Civil War on the staffs of the Confederate generals, Sibley, Green, and Taylor, won a colonel's brevet, and was made confidential messenger of Jefferson Davis to the Confederate commanders west of the Mississippi. After the war President Grant appointed him United States Marshal of Texas, an office which he soon resigned, however, to manage the Houston *Telegraph*, of which he became editor and proprietor. His election to Congress as an independent candidate, falling as it did in a Democratic stronghold, which he canvassed mainly on horseback, making innumerable speeches, he won by sheer perseverance and strength of personality. Of late years his renown as a story-teller and the soul of geniality was as great in foreign capitals as in the United States. He was once characterized as "colonel by birth, warrior, statesman, journalist, diplomat, promoter, bon vivant, raconteur, and friend of the rich."

ODD FELLOWS, INDEPENDENT ORDER OF, organized in England in 1812, and in the United States in 1819, may be divided into the Encampment Branch, the Chevaliers of the Patriarchs Militant, and the Rebekah Lodges, the last-named being made up of both sexes. There were reported at the annual meeting held in Des Moines, Ia., September, 1902, by the grand secretary of the Sovereign Grand Lodge, 66 Grand Lodges in the United States and Canada; 55 Grand Encampments; 12,792 subordinate lodges; 2780 subordinate encampments; 1,002,272 lodge members; 40 Rebekah assemblies; 5756 Rebekah lodges; 273,653 Rebekah lodge members; of these latter, 139,827 were men, and 233,826 were women. Besides the Sovereign Grand Lodge there were six quasi-independent grand lodges in foreign countries. Total amount expended by the various bodies during the year 1901 was $3,939,785, out of a total revenue of $10,782,562. Total expenses, outside of payments on relief account, amounted to $4,815,508, and the amount invested by subordinate lodges, encampments, and Rebekah lodges was $29,952,769. The total amount of relief paid by the order up to December, 1901, including the relief payments of six quasi-independent lodges, was $92,665,214.47. Total revenue for the same period was $240,430,422.21; the number of initiations since 1830 was 2,544,120 in subordinate lodges; the number of members relieved, 2,565,905; number of widowed families relieved, 256,606, and the loss of membership by death within the same period, 252,354. The total amount expended in relief for the year ending December 31, 1901, was $4,106,173.88; the number of brothers relieved, 122,276; the number of widowed families relieved, 5659. The amount paid for the relief of brothers, $3,090,271.07; that paid for the relief of widowed families, $147,291.16; for the education of orphans, $86,818.84; and for burying the dead, $781,792.81. The balance in the hands of the grand treasurer at the date of the annual meeting was $70,888.42. The next meeting of the Sovereign Grand Lodge will be held at Baltimore, Md., September 21-26, 1903. Grand sire, John B. Goodwin, Atlanta, Ga.; grand secretary, J. Frank Grant, Baltimore, Md.

ODELL, Benjamin B., Jr., was elected governor of the State of New York for a second term on November 4, 1902. He was born at Newburgh, N. Y., January 14, 1854, and was educated at Bethany College, W. Va., and at Columbia, where he was a member of the class of 1877, but left college before graduating. Settling in his native town he rapidly achieved success in business, and became a leading factor in its commercial and political life. As a political campaign manager, and as chairman of the Republican district committee, he converted his district, which had been considered doubtful politically, into a Republican stronghold. In 1887 he became a member of the Republican State Committee. In 1894 he was nominated and elected to the Fifty-fourth Congress, and in 1896 was re-elected, serving as chairman of the committee on accounts in the Fifty-fifth Congress. He declined a renomination in 1898, and two years previously, having become chairman of the Republican State Committee, he bent all his energies toward perfecting the party organization. It was as a "machine" politician that he was most widely known when, in 1900, he was nominated at the Republican State Convention, for governor of the State, and triumphantly elected. In his administration of the gubernatorial office he showed, instead of the blind partisan subserviency that many had expected of one who had been so closely identified with the "machine," a rather unusual degree of independence, and succeeded in securing legislation involving numerous reforms and economies in the administration of State departments and institutions. His own conception of his new responsibilities in office is well illustrated in the reply he is said to have made to a politician of his party who was expostulating with him for opposing a bill, which, as head of the Republican State Committee, he had strongly urged. "I was acting then," he is reported to have said, "as 'Ben' Odell of the Republican State Committee; I am acting now as Governor Odell, of the State of New York." In 1902 he was renominated, and in spite of the overwhelming Democratic majority in New York City, due largely to local conditions, which almost defeated him, he carried the State by increased majorities over 1900, in most of the counties of the State.

OHIO, an east central State of the United States, has an area of 41,060 square miles. Ohio was formerly a part of the Northwest Territory, and was admitted to statehood in 1803. The capital is Columbus. The population in 1900 was 4,157,545, and in 1902, as estimated by the government actuary, 4,262,000. The populations of the five largest cities in 1900 were: Cleveland, seventh largest city in the United States, 381,768, an increase of 120,415 since 1890; Cincinnati, 325,902; Toledo, 131,822; Columbus, 125,560; and Dayton, 75,333.

Finance.—The balance in the treasury on November 16, 1901, was $1,226,664.46. The total receipts into the general revenue fund for the fiscal year were $5,206,170.91; the expenditures were $5,269,098.42; the receipts into the sinking fund, including the balance from the previous year, were $804,781.72; expenditures, $550,212.49; receipts into the State common school fund, including balance, $2,111,735.80; expenditures, $1,829,924; receipts to credit of university fund, $374,720.47; expenditures, $322,329.58; total expenditures of other State institutions, $3,148,571.91.

Agriculture and Industries.—The principal farm crops of Ohio for 1902, according to the *Crop Reporter,* were: Corn, 3,200,224 acres, 121,608,512 bushels, $51,075,575; winter wheat, 2,124,759 acres, 36,333,379 bushels, $25,796,699; oats, 1,129,192 acres, 46,409,791 bushels, $14,851,133; barley, 31,703 acres, 1,204,007 bushels, $501,763; potatoes, 165,252 acres, 15,533,688 bushels, $6,834,823; hay, 2,768,547 acres, 3,959,022 tons, $40,382,024; tobacco, 62,949 acres, 55,709,865 pounds, $3,899,691.

The output of the coal mines was much greater than ever before, largely on account of the demand created by the strike in the Pennsylvania mines. The year's production was approximately 24,700,000 short tons. The production of pig iron increased from 3,326,425 tons in 1901 to 3,631,388 tons in 1902—Pennsylvania alone producing more. Bessemer steel manufactured in 1902 amounted to 2,528,802 tons, against 2,154,846 tons in 1901. Steel works were crowded with orders months ahead. Traffic through the lake ports increased nearly 35 per cent. over 1901, largely on account of coal and iron shipments. Three new woolen mills and two new knitting mills were reported for 1902.

Railroads.—The report of the commissioner of railroads of Ohio for the fiscal year ending November 15 gives 9059 miles, represented by capitalization of $325,515,901.28, as against 8719.62 miles, represented by a capitalization of $314,871,365.03, in 1901. The total earnings in Ohio from all sources for 1902 were $101,001,341.37, as against $89,699,277.75 in 1901, showing an increase of 12.6 per cent. The percentage of net earnings to gross earnings was 42.42 per cent. The total operating expenses of the roads in Ohio were $64,953,128.91 in 1902, as against $61,241,913.91 in 1901, showing an increase of 13.01 per cent. The total number of passengers carried in Ohio during 1902 was 28,499,313, as against 26,510,292 in 1901, an increase of 1,989,021, or 7.5 per cent. The number of tons of freight transported during 1902 was 132,113,976, as against 117,628,852 tons in 1901, an increase of 14,485,124 tons, or 12.31 per cent. The average receipts per ton in 1902 were 54.5 cents, an

increase of 1 cent over 1901. The freight earnings per mile of road were $6990.13, as against $5971.35 in 1901.

Legislation.—The 75th biennial session of the legislature convened in regular session on January 6, 1902, and adjourned May 12. The following constitutional amendments were passed, to be submitted to the electors in November, 1903: (1) To change that provision of the constitution which prescribes that stockholders shall in all cases be liable over and above all the stock owned by them, substituting the following clause: "In no case shall any stockholder be individually liable otherwise than for the unpaid stock owned by him or her." (2) To change that clause of the existing constitution which provides that all moneys, stocks, real and personal property must be taxed by a uniform rule and according to their true value in money, so that the tax need be uniform only on all property of the same class. (3) To insert a provision in the constitution giving the governor the veto power usual in other States over bills passed by the assembly. It is provided that a bill may become law if it is passed by a two-thirds vote in each house over his veto; but "all votes for the re-passage of such bill shall in each house respectively be no less than those given on the original passage." The governor has also power to veto sections of bills and separate items in appropriation bills. (4) To amend the clause of the existing constitution providing for representation in the assembly in accordance with population, by providing that each county shall have at least one representative. In accordance with the act passed by the assembly on May 2, these proposed amendments, when they come before the electors, will all bear the mark of the approval or disapproval of the political party advocating or passing them; for by the law of May 2 it was provided that the action of any State convention of a political party for or against a proposed amendment might be certified and printed upon the regular ballot for the election at which the amendment was to be voted upon.

A State tuberculosis commission of seven members was created to report to the governor by May 3, 1903, on the desirability of establishing a State sanitarium for consumptive patients. A law for the suppression of anarchy provided that the penalty for attempting to kill the President, Vice-President or any cabinet officer, or the governor or lieutenant-governor of any State or Territory should be imprisonment for life, while that for the killing of any of these officers should be death.

A State board of embalming examiners was created to regulate the practice of embalming so as to prevent the spread of contagion and to provide for the better protection of health. A negotiable instruments law uniform with that of several other States was passed. The Ohio State Board of Uniform State Laws was also created, consisting of three persons, to collect data and report to the governor as to what laws of a general, commercial, charitable, and legal nature might be passed uniform with those of other States. An act providing that any municipal corporation might prohibit liquor traffic within its boundaries, was modified by stipulating that this could only be done after a local election held upon the demand of 40 per cent. of the qualified electors.

An act to protect creditors provided that the sale of merchandise in bulk or of an entire stock of merchandise should be void as against the merchant's creditors, unless the seller should have furnished to the buyer before the sale the names and addresses of his creditors and the amounts due them and a complete invoice showing the cost of the goods, and unless the purchaser also had before the sale given notification of his proposed purchase to the creditors.

Municipal Affairs.—The Supreme Court of Ohio rendered several important decisions concerning legislative control of municipal affairs. The constitution of Ohio expressly provides that municipalities shall be divided into but two classes. For many years, however, the legislature has entirely disregarded this provision, and has divided municipal corporations into numerous classes for purposes of special legislation under the guise of general enactments, which in reality could apply only to one or two cities. As a result, Cincinnati, usually a Democratic city, came under the government of city boards naturally Republican, while Cleveland, generally a Republican city, enjoyed home rule under what was known as the "Federal plan," whereby heads of departments were directly responsible to the mayor, and that official was directly responsible to the people. It was held that if Cleveland had home rule, Cincinnati was entitled to it also, as conditions in the two cities are practically identical. After the election of Tom L. Johnson as mayor of Cleveland, the local Republican politicians began agitations to deprive Cleveland of the charter granted in 1891, the legality of which had never been questioned. The act conferring the charter was applicable to "cities of the second grade of the first class," but Cleveland was the only city of that class. The politicians attacked the charter act on the grounds that it was special legislation. That the attack was political in character was evident from the fact that the charter was acknowledged to be

well drawn and in harmony with the best ideas on municipal administration. At the same time a clique of politicians succeeded in pushing a bill through the State legislature providing that the administration of the police force of Toledo should be transferred to a State board of police, its members, four in number, to be appointed by the governor. Immediately two Republicans and two Democrats were named by the governor, and the new police board formally demanded of Mayor Jones the transfer of the property of the police force. Mayor Jones refused to comply, saying: "If we once concede that there is some authority greater than the people that can, at will, remove or dismiss a public officer chosen by the people according to the terms of law, then it is clear that there is no hope for the survival of liberty or free government among men, and the provisions of the constitution guaranteeing a popular government are therefore valueless." The Toledo question and also that of the Cleveland charter were carried before the Supreme Court, which decided, on July 26, that the new Cleveland charter as well as all the other special charters granted by the legislature for the past 40 years were invalid. The State Police Board created for Toledo was later declared to be special legislation also. The court agreed not to enforce its decision until October or until the legislature could provide constitutional governments for the different municipalities of the State. A special session of the legislature was accordingly called by Governor Nash in August for this purpose, and a new municipal code enacted. The new code provides that the legislative function of every city shall be vested in a council consisting of but one chamber of not less than seven members, some of whom shall be elected by wards and some by the city at large. Executive responsibility is divided among boards of various origin, and the governor is given power to make appointments when the council refuses to ratify the choice of the mayor. By this provision the mayor's power is greatly curtailed, and it was alleged that the measure had been devised for the purpose of diminishing the influence of Mayor Johnson of Cleveland and of Mayor Jones of Toledo, who were strong advocates of municipal home rule and had large followings in their respective cities. The chief administrative authority of the city is vested in a board of public service, to consist of three or five members, elected by the people. A department of public safety, administered by two or four directors appointed by the mayor with the approval of two-thirds of the council, has full control of the police and fire departments. It is laid down in the code that appointive officers of the municipality shall be selected and protected by "the merit system." The value of this provision is lessened by a proviso that the members of the Board of Public Safety shall be appointed by the governor, if the council should after thirty days fail to ratify the choice of the mayor by a two-thirds vote. It is provided that no street railway franchises shall be granted without public notice, that the grant must be to the bidder agreeing to carry passengers at the lowest rates, and that the written consent of the property holders owning the majority of the property on the line of the proposed railroad must be secured. No franchise shall be granted for more than twenty-five years. Senator Hanna favored the granting of perpetual franchises, while Mayor Johnson urged the inclusion of a provision whereby franchises might be suspended whenever the voters might demand it. Many men of both parties supported the view that new franchises should not be granted by councils without referring the matter to the voters of the city. The worst feature of this complex and doubtful code is the subdivision and dispersion of responsibility, so that neither parties nor individuals can be called to account for maladministration.

Legal.—Petitions were filed, on February 28, in the Common Pleas Court of Cleveland, for indictment against the Cleveland Electric Railway Company and the Cleveland City Railway Company on the charge that these companies had used unlawful and corrupt means to prevent the new Three Cent Fare Railway Company from constructing and operating its road. The head of the new company filed a similar indictment, and a temporary restraining order was issued.

This law passed by the State legislature in 1896 extending all street railway franchises to 1946, or fifty years from the passage of the act, was declared unconstitutional by the Supreme Court in August. A suit was brought by a taxpayer to test the law, and the decision was given by the court on the grounds that the law arbitrarily and unreasonably classified street railway and municipal corporations, and that it was not of uniform and equal operation.

Conventions and Platforms.—The Republican State convention was held at Cleveland on May 28, with Senator Hanna in full control. The platform indorsed President Roosevelt; declared in favor of "proper and reasonable trade concessions" to Cuba in return for her concessions as to American products; approved the Chinese exclusion law; recognized the necessity of cooperation in business, but opposed all combinations that stifle competition, control prices, limit production, or unduly increase profit; upheld the policy in the Philippines; and favored the passage of laws against attempts on the life of the chief magistrate.

The Democratic State convention was held at Sandusky, September 3, with Mayor Tom L. Johnson of Cleveland as chairman. The platform reaffirmed the principles of the Kansas City platform; opposed imperialism and colonialism; declared against trusts and monopolies, and favored the nomination of United States senators by State conventions until the Federal constitution was so amended as to admit of their election by popular vote. The platform declared that all public service corporations should be required by law to make sworn public reports, and that the power of visitation and examination should be given to the proper auditing officers.

Elections.—At the regular annual election, held November 4, 1902, the only officer voted for was secretary of state, the vote being: Laylin (Rep.), 436,171; Bigelow (Dem.), 345,706, giving the Republican candidate a plurality of 90,465. The legislature of Ohio on January 14 elected Joseph B. Foraker (Rep.) United States senator to succeed himself for the full term beginning March 4, 1903, and ending March 4, 1909. There was no contest in the Republican caucus over the senatorship, as Mr. Foraker had been indorsed by the Republican convention of 1901. The vote in the legislature was divided strictly along party lines. The legislature for 1903 will consist of 21 Republicans and 12 Democrats in the senate, and 68 Republicans and 42 Democrats in the house.

State Officers: For 1902 and 1903—Governor, George K. Nash, elected for two years, term ending January, 1904; lieutenant-governor, H. L. Gordon; secretary of state, Lewis C. Laylin; treasurer, Isaac B. Cameron; auditor, W. D. Guilbert; commissioner of common schools, Lewis D. Bonebrake; attorney-general, John M. Sheets; secretary of the State board of agriculture, W. W. Miller; commissioner of insurance, S. J. Vorys; secretary of the State board of health, C. O. Probst; commissioner of labor, M. D. Hatchford—all Republicans.

Supreme Court for 1903: Chief justice, J. F. Burkett; associate justices, John A. Shauck, William Z. Davis, W. B. Crew, J. L. Price, William T. Spear, Lawson E. Emerson—all Republicans.

For Congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

OKLAHOMA, a southwestern Territory of the United States, has an area of 38,956 square miles. The capital is Guthrie. The Territory was organized May 2, 1890. The population in 1900 was 398,331; in June, 1902, as estimated by the government actuary, 461,000; and as shown by the county assessors' returns, 541,480, a gain of 143,149, or nearly 36 per cent. over 1901. The largest cities in 1900 were: Oklahoma City, with 10,037 inhabitants, and Guthrie, with 10,006 inhabitants.

Finance.—The amount of money received during the year ending November 30, 1902, was $997,659.28; warrants redeemed during the year were $745,006.71, and the balance November 30, 1902, was $648,377.32. The expenses of the Territorial government proper were, for 1901, $199,625; for 1902, $154,276.09. The general revenue fund indebtedness on November 30, 1902, was $462,440.23; the total amount of warrant indebtedness, including the above, was $636,176.69. To this must be added the $48,000 of school fund bonds, making a total Territorial indebtedness of $684,176.60. If the balance in the treasury ($648,377.32) be deducted the net debt remaining on November 30, 1902, would be $35,799.37.

Agriculture and Industries.—The principal field crops of Oklahoma in 1902, as given by the *Crop Reporter,* were: Corn, 1,569,831 acres, 40,501,640 bushels, value $15,795,640; winter wheat, 1,087,747 acres, 12,073,932 bushels, $7,002,915; oats, 277,240 acres, 13,252,072 bushels, $4,505,704; barley, 16,411 acres, 590,796 bushels, $248,134; potatoes, 10,543 acres, 1,022,671 bushels, $787,457; hay, 267,302 acres, 336,801 tons, $1,786,045; flaxseed, 19,800 acres, 152,460 bushels, $144,837.

Railroads.—The length of railroad track, as returned for taxation in March, 1902, was: Main track, 1,413.23 miles; side track, 181.67 miles, making a total of 1,594.80. More railroad was built in Oklahoma during the calendar year 1902 than in any other State or Territory of the United States. The amount constructed was 568 miles, raising the total mileage at the end of the year to more than 2000 miles.

Land Conditions.—During 1902, 3,068,502 acres of land were filed on and there were still vacant 3,777,883 acres, of which over 3,000,000 acres were in Beaver County. The system employed in leasing the Territorial lands in the latter, Wichita, Caddo, Kiowa, and Apache reservations proved eminently successful. All of these lands were leased, the amount of rentals received during the year ending June 30, 1902, being more than double the amount of the previous year. All of the 2.055,000 acres of school lands were leased and the income for 1902 was $300,000. The present laws which regulate the distribution of the school fund do not allow the school districts in the new counties to participate in the distribution. It was estimated that $22,000 would have gone to these counties at the last distribution in July.

Territorial Officers.—For 1903: Governor, James B. Ferguson; secretary, William Grimes; treasurer, Cassius Rambo; auditor, L. W. Baxter—all Republicans.

Supreme Court for 1902 and 1903: Chief justice, John H. Burford; associate justices, Bayard T. Hainer, Benjamin F. Burwell, Clinton F. Irwin, Frank E. Gillette, James K. Beauchamp, and J. L. Pancoast—all Republicans.

OLD-AGE PENSIONS. See PENSIONS FOR WORKINGMEN and BELGIUM.

OLEOMARGARINE. See UNITED STATES (paragraph Oleomargarine Bill).

OLPHERTS, Sir WILLIAM, English general, died in Norwood, England, April 30, 1902. He was born in 1822, was educated at the Addiscombe Military Academy, and began his military career in the Bengal Artillery in 1839. Serving first in the Burma war of 1841, he was engaged in many battles and campaigns in India, Turkey, and the Crimea, in all of which he displayed a reckless courage that gained for him the nickname of "Hell-Fire Jack." He attained especial distinction in 1857 during the Indian mutiny, participated in Lord Hyde's capture of Lucknow, and for his gallantry throughout was rewarded with the Victoria Cross. He held several important military posts in India, and in 1878 was made colonel-commandant of the Royal Artillery.

OMAN, a sultanate of Arabia (*q.v.*).

ONTARIO, a province of the Dominion of Canada, with an area of 222,000 square miles, and a population, according to the census of 1901, of 2,182,947, as compared with 2,114,321 in 1891. Capital, Toronto; population, 207,971, as compared with 181,200 in 1891. At the end of 1900 there were 5655 public schools, with 420,097 registered pupils; 355 Roman Catholic separate schools, with 42,397 pupils; 131 high schools, with 21,723 pupils; 120 kindergartens, with 11,234 pupils; and 76 teachers' institutes. Of higher educational institutions the province has 6 universities and 6 colleges, with a total of 4104 students.

Government and Finance.—The province is administered by a lieutenant-governor appointed by the governor-general in council and aided by a responsible ministry. There is one legislative assembly of 98 members elected by manhood suffrage. Ontario has 24 seats in the Dominion Senate and 85 in the House of Commons. The revenue and expenditure for the calendar year 1901 were $4,466,043 and $4,038,834 respectively. The largest items of revenue were the Dominion subsidy, $1,196,872; crown lands, $1,618,309; and licenses, $376,372. The chief items of expenditure were the maintenance of public institutions, $833,163; education, $782,193; administration of justice, $416,042; and civil government, $281,135.

Industries and Commerce.—According to the final official estimate of 1902 there were 8,677,988 acres under crops, and the returns were as follows for the chief crops: Fall wheat, 20,033,669 bushels; spring wheat, 6,048,024 bushels; barley, 21,820,602 bushels; oats, 106,431,439. The area of cleared land devoted to pasture in 1902 was 2,879,967 acres, an increase over the previous year, and the area devoted to orchards and gardens was 356,251 acres, an increase over 1901. The total mineral production, which is rapidly growing in importance, was valued at $11,831,086 in 1901, as compared with $9,298,624 for 1900. The officially estimated value of the product of the fisheries for 1901 was $1,428,078. The trade of the province for the fiscal year ending June 30, 1902, was largely in excess of that of the preceding year, aggregating $134,830,040 as against $109,980,407 for 1901. The exports were $48,597,480, as compared with $36,490,028, and the imports, $86,232,560, as against $73,490,379 for 1901. The mineral production, comparatively unimportant until recently, promises much in the development of the iron and steel industries at Sault Ste. Marie. During 1901 47 companies were incorporated for mining purposes with a nominal capital of $27,716,000, and 13 foreign companies, with $12,250 capital, were licensed. The output of metal minerals for 1901 was valued at $5,016,734, as compared with $2,565,286 in 1900.

History.—The three most important facts in connection with Ontario's politics and development during 1902 are the building of a new railway, the progress of settlement and opening up of new industries in sparsely inhabited districts, and the experiments in prohibitory liquor legislation. The general provincial elections were held on May 29, and the Liberal administration, of which the Hon. G. W. Ross, is the head, was sustained by the narrow majority of 2, the Liberal members returned being 50 and the Conservatives 48. This result left it in doubt for some time whether the Ross government would remain in power, and the result of several contested election returns was awaited. Charges of corruption were brought against the government, and the defection of a well-known Liberal, Hon. S. H. Blake, from his former political affiliations was believed by many to have brightened the prospects of the opposition. To offset charges of corruption against the government the statement was made that Mr. Blake and his friends were interested in obtaining control of rich mineral lands, for a company in connection with the Steel Trust, and public opinion became excited when this statement was widely circulated by the press. The result was that when the by-elections were held in December, the Ross government obtained sufficient additional support to make a substantial majority. In the speech

from the throne at the opening of Parliament in January, prohibitory liquor legislation was promised. The government had been pledged to the prohibitionists, and the decision of the Imperial Privy Council that the Manitoba prohibition law is constitutional, encouraged the hope that Ontario could have an equally drastic measure. When the act was introduced in the legislative assembly on February 19, it was found that, although its provisions were similar to those of the Manitoba Act, its final success depended upon a referendum. The condition was that if at this referendum a vote amounting to a majority of the votes cast at the general election in May should be recorded, the act, which had passed the assembly, would be enforced. Prohibitionists were intensely hostile, believing this to be a shelving of their favorite measure, which it proved to be. At the taking of the referendum in December, the vote cast was not sufficient, though it amounted to 160,000, about 30 per cent. of the votes of the whole electorate. The work of railway building and settlement in what is called New Ontario, made considerable progress in 1902. In January legislation was promised to authorize the construction of the first government railway in Ontario running through the district between Lake Nipissing and Lake Abitibbi, and northwesterly from Lake Temiscaming. This district contains much arable land, timber, and mineral deposits. The road is now under construction. A plan for settling 2,000,000 acres in this region has been agreed upon between the government and an American syndicate, which has contracted to place 12,000 settlers there in a specified time and to resell the land to the settlers at a reasonable advance upon the price of purchase.

ORANGE RIVER COLONY, formerly the Orange Free State, lying south of the Transvaal and northeast of Cape Colony, has been since May 28, 1900, a colonial possession of Great Britain. Its area is estimated at 48,326 square miles, and its population at the outbreak of the war in South Africa was 207,503, comprising 77,706 whites, of whom 85 per cent. were Boers, and 129,787 Kaffirs. The capital and largest town is Bloemfontein, with 6500 inhabitants. The predominant religion is that of the Dutch Reformed Church. Education under the republic was neither free nor compulsory. During the war the British maintained instruction in the towns and refugee camps, and since the establishment of peace steps have been taken for the organization of a general school system for the colony. The country is not well adapted for agriculture, only about 1 per cent. of the area having been under cultivation in 1899. The extensive grazing lands, however, afford excellent opportunities for stock and sheep raising, which have been the chief industries of the country. There are valuable coal deposits in the north, and important diamond mines, the output from which in 1898 was valued at over £1,500,000. The government of the colony since the British occupation has been largely under military control, but there has been with the military a coordinate civil administration, and as far as possible civil magistrates have been appointed to supersede the military commissioners. The executive control has been vested in a governor (Lord Milner), who is also governor of the Transvaal, and who exercises his authority through a lieutenant-governor (Sir Hamilton Goold-Adams). The imports in the year 1901-02 were valued at £1,070,000 and the exports at only £16,979. The British administrators' estimates for revenue and expenditure, made early in 1902, were respectively £756,200 and £691,140, the latter amount including the sum of £300,000 for the maintenance of the South African constabulary. There are two main lines of railway in operation, one running from Norval's Pont, on the Orange River, through Bloemfontein to Johannesburg and Pretoria in the Transvaal; the other starting at Harrismith connects with the Natal system. During 1902 surveys were made for three new lines; (1) an extension of the Harrismith line via Reitz to Vereeniging; (2) a branch from Thaba Nehu on the Bloemfontein line through Modderport to Ficksburg; (3) an extension of the existing Springfontein-Fauresmith line from Fauresmith to Koffyfontein. Construction work on the first two extensions was being rapidly pushed at the end of the year. Martial law was repealed on November 19, 1902, and on November 28 it was reported that only 8000 remained in the burgher camps, over 33,000 having been sent back to their homes. For the Anglo-Boer war, see TRANSVAAL.

OREGON, a Pacific Coast State of the United States, has an area of 96,030 square miles. The capital is Salem. Oregon was organized as a Territory August 14, 1848, and was admitted as a State February 14, 1859. The population in 1900 was 413,536, and in June, 1902, as estimated by the government actuary, 434,000. In 1900 the largest city was Portland, with a population of 90,426.

Finance.—The balance in the State treasury of Oregon at the beginning of the nine months ending September 30, 1902, was $944,623.40. The treasury receipts during the period were $3,408,795.86, and the disbursements $3,215,843.62, leaving on hand on September 30, 1902, $1,137,575.64.

Agriculture and Industries.—The principal farm crops of Oregon for 1902, according to the *Crop Reporter,* were: Winter wheat, 398,845 acres, 8,774,590 bushels,

value $5,878,975; spring wheat, 378,532 acres, 6,737,870 bushels, $4,514,373; oats, 281,955 acres, 8,092,108 bushels, $3,317,764; barley, 62,324 acres, 1,988,136 bushels, $1,033,831; potatoes, 35,724 acres, 3,679,572 bushels, $2,023,765; hay, 343,537 acres, 700,815 tons, $5,242,096. There was an enormous increase in the lumber industry in 1902. According to the *Pacific Lumber Industry* the entire product for the year amounted to 236,902,143 feet, against 169,715,624 feet in 1901, nearly 40 per cent. increase. Of 51,973,220 feet exported in 1902, 24,254,347 feet went to China. The gold mines showed an increased and the silver mines a decreased product for 1902. The director of the mint reported $1,860,465 of gold and $63,600 in silver for 1902. Trade journals assert that the gold output was nearly twice that figure. The figures for 1900 were respectively $1,640,000 and $91,995.

Conventions and Platforms.—The Republican State convention was held at Portland on April 2. The platform favored the retention of the Philippines; trusts and combinations were strongly condemned; the principles of protection were upheld "in necessary cases of industries still in their infancy or unable to compete with foreign production." The exclusion of the Chinese was approved and the right of labor to organize was asserted. Concerning State matters, the convention advocated reasonable salaries for State officers; the opening of the Dalles to navigation; government aid and control of irrigation; the leasing of public lands; federal conservation of fisheries; the Grout oleomargarine bill; the extension of the primary law throughout the State, and the passage of the amendment to the constitution providing for the initiative and referendum.

The Democratic State convention was held at Portland on April 10. The platform advocated a tariff for revenue only; Chinese exclusion; the speedy construction of the Nicaragua Canal; federal improvement of the Columbia River; irrigation of arid lands by the federal government; the giving of pensions to Indian war veterans, and the eight-hour day in public work. The convention condemned trusts, "government by injunction," and combinations of railroad interests. Concerning State matters, the platform declared in favor of non-partisan home rule in municipal government; fair payment for public franchises; extension of the principle of public ownership; the payment of fixed salaries to State officials; the enactment of laws to prevent railroad discrimination, and the right of labor combinations. The creation of a national department of labor was urged in connection with the general labor question.

The platform of the Socialist party demanded that all industries should be owned by the people; the limitation of official salaries to $2000 a year, and the exclusion of the Chinese until such time as socialism shall prevail.

Other Events.—Harry Tracy, a convict, escaped from the penitentiary at Salem on June 9 with a fellow prisoner. Nearly $6000 in rewards was offered for his capture, and about one thousand men went in pursuit. Though six times surrounded he fought or stole his way out, killing a number of his pursuers, and after a flight of 1500 miles, took refuge in a swamp in Lincoln County, Wash. Here, surrounded and wounded, on August 6 he shot himself. In several parts of the State during June there were encounters between cattlemen and sheep-herders, the former attempting to keep possession of the grazing lands. A number of herders were killed, and thousands of sheep were wantonly shot. Extensive forest fires on Clockamas River and Clear and Eagle creeks, September 14, did an enormous amount of damage. On Eagle Creek 24 villages were destroyed.

Elections.—At the regular biennial State elections, held June 2, 1902, a full State ticket was elected, all the Republican candidates being chosen with the exception of Furnish for governor, who was defeated by Chamberlain (Dem.) by a vote of 41,581 to 41,857. The contest was one of the most exciting ever held in the State, and factional feeling ran high. The chief issue, as set forth in the party platform was the question of imperialism, but the defeat of Furnish was the result of personal and factional feeling rather than any sentiment hostile to the administration's policy in the Philippines. The other Republican candidates were elected by pluralities of about 10,000. The State legislature for 1903 will consist of 21 Republicans, 3 Democrats, 3 Citizens' party, 1 Union, 1 Fusionist, and 1 People's Democrat in the Senate, and 48 Republicans, 11 Democrats, and 1 Citizens' party in the House. The voters decided in favor of an amendment to the constitution providing for the adoption of the initiative and referendum. The terms of the initiative are that, on petition of 8 per cent. of the voters, any proposed law or amendment to the constitution, must be submitted to the people for adoption or rejection, and on petition of 5 per cent. of the voters any bill enacted by the legislature must be submitted to the people for acceptance or rejection.

State Officers.—For 1902: Governor, T. T. Geer; secretary of state, Frank I. Dunbar; treasurer, C. S. Moore; superintendent of instruction, J. H. Ackerman; attorney-general, D. R. N. Blackburn—all Republicans. For 1903: Governor, G. E. Chamberlain (elected for four years, term ending January, 1907); secretary of state,

F. I. Dunbar; treasurer, C. S. Moore; superintendent of public instruction, J. H. Ackerman; attorney-general, A. M. Crawford—all Republicans except Chamberlain, Democrat.

Supreme Court for 1903: Chief justice, Frank A. Moore; associate justices, Charles F. Wolverton, and Robert S. Bean—all Republicans.

For Congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

ORGANOTHERAPY is the use of animal glands, or extracts made from them, as medicines. According to Dr. Davies, an English physician, whose address on this subject before the Hunterian Society in February, 1902, is abstracted in the *Philadelphia Medical Journal*, for May 10, 1902, the use of animal substances in medicine dates back to 1500 B.C. William Salmon's work, published in 1677, gives an enormous number of preparations of extracts from the human body and animals. Modern organotherapy dates from the lectures of Brown-Séquard in 1869. He pointed out that all glands, with or without excretory ducts, elaborate an internal secretion, which is of great importance in the animal economy. Recent experiments have confirmed this view. The effect of the testicular extract is proved negatively by the results of castration. When testicular extract is injected subcutaneously it produces an increase of hemoglobin, the cardiac force is strengthened, the vascular tone is exalted, and the mind becomes more active. It has been used in insanity with indeterminate results. Ovarian extract has a similar, but less powerful effect. It has been found useful in amenorrhœa, with chlorosis, in the menopause, in the symptoms following oöphorectomy, and in allied conditions. Overdoses may cause death. The thyroid gland is probably the most useful of all these preparations. In cretinism and myxœdema it is of undoubted value, and in goitre not of the exophthalmic type. Certain skin affections have been benefited by thyroid extract such as lupus, psoriasis, ichthyosis, and alopecia. Suprarenal extract has been used in Addison's disease with a certain proportion of cures. In other conditions, however, brilliant results with this drug have been achieved. It is a valuable vaso-constrictor and cardiac tonic and it has a certain value in heart diseases. When applied locally it is a powerful astringent and relieves the pain of cancer of the breast or of the œsophagus, and in tuberculous laryngitis. Its most important use is in checking hemorrhage. This it does whether used locally or given internally. Thymus gland has been employed in cases of exophthalmic goitre with no result except improved general condition. Extract of the pituitary body also has been used in this disease with negative results. Hepatic extract was given in diabetes mellitus due to functional debility of the liver and in alcoholic cirrhosis with good effect. Pancreatic extract has been given for diabetes mellitus. Extract of the intestine has been employed with considerable success to combat stercoremic poisoning occurring in cases of strangulated hernia and invagination of the bowel. Renal extract has been used in cases of uremia and nephritis with temporary benefit. Favorable results are claimed for splenic extract in exophthalmic goitre and typhoid fever, and pulmonary extract acts well in pleuropulmonary suppuration. Nerve extracts are recommended in locomotor ataxia, epilepsy, chorea, and neurasthenia. Shober has found mammary gland extract of value in uterine fibroids. It controls the hemorrhage, inhibits the growth of the tumor up to a certain point, and renders the patient more amenable to operation. Parotid gland extract has been found useful in controlling pain in uncomplicated ovaritis.

ORNITHOLOGY. As in 1901, bird protection has been a leading topic in the ornithological world during 1902, and it is now regarded as the natural object of ornithological organizations. The most notable single event during the past year in the way of caring for birds was the signing at Paris, March 19, of an international agreement for the protection of birds useful to agriculture. The contracting parties were Austria-Hungary, Belgium, France, Greece, Lichtenstein, Luxemburg, Monaco, Portugal, Spain, Sweden, and Switzerland. A number of species are listed to receive unconditional protection, the destruction of the nests or eggs, as well as of the birds themselves being prohibited. It is greatly to be regretted that Italy was not one of the signers, as probably more song-birds are destroyed there for food than in any other European country, and she forms a large part of one of the principal migration lines. The committee on bird protection of the American Ornithologists' Union had a very successful year, and at its close published a voluminous report on the work done and the present needs of the birds in the way of friendly legislation. The committee has had at its disposal rather more than 2200 dollars contributed by private subscription, and this has been spent for warden's salaries and for necessary expenses connected with securing favorable legislation. Maine, Virginia, and Florida, have been the scenes of the most work, the expenditure in those three States amounting to nearly one-half the entire sum, but more or less money has been spent in eighteen States. The report is most emphatically a report of progress, and the prospects for the preservation of our native birds are better than

ever before. But if bird protection is steadily gaining ground, the scientific study and collecting of birds is not lessening its sway, as a glance at the literature mentioned below will promptly show. Two collecting trips demand a word; one was that of the well-known ornithologist, Dr. Hans Gadow, who has been in Central America and returned to England in the early fall; the other was that of Capt. Boyd Alexander, who left England late in the summer to study and collect the birds of Fernando Po and other places in the Bight of Benin, and to explore the country around Lake Tchad, especially to determine so far as possible the relationship between the East and West African faunas. In this connection, it may be mentioned that the Carnegie Museum at Pittsburg has purchased the collection of the birds of Holland, belonging to the Baron Snouckaert van Schauburg and mounted by Tar Meer, the celebrated Dutch taxidermist. It is an unusually well selected collection of some 800 specimens, representing 300 species.

Organizations.—The year has been a good one for organizations, so far as any reports have been made. The different ornithological societies of Europe have apparently enjoyed a satisfactory season, while the Australasian Union has had a most successful initial year. In America the Audubon societies and the various local and State clubs seem to have prospered and many of them have held successful meetings. The third annual conference of Audubon societies was held in Washington, November 19 and 20, in connection with the gathering of the American Ornithologists' Union. Delegates were present from sixteen State societies. The principal business transacted was the appointment of a committee to examine the sample stock of wholesale millinery dealers, with a view to a systematic and intelligent cooperation between the wholesale millinery trade and the Audubon societies. The educational side of bird protection work was emphasized and arrangements were made for the exchange of lantern slides for use in lectures on bird protection. A public appeal for suitable negatives for such slides was issued. The twentieth congress of the American Ornithologists' Union convened in Washington, Monday evening, November 17, and was in session until Friday, November 21. The secretary reported the membership as 753, and 90 new members were accepted, nearly all of whom were in the class of associates. Of the 22 papers on the programme, 6 dealt with the habits of birds, 4 with the plumage, and 4 with questions of history and nomenclature. The subject of bird protection occupied a large part of the discussions and the report of the committee on that subject was received with much interest. A committee on International Bird Protection was chosen, and two delegates were elected to the forthcoming congress. The next meeting of the union, in 1903, will be in Philadelphia.

Literature.—The ornithological literature for 1902 has been unusual in volume if not in value. The journals devoted to the science are apparently prosperous and have contained numerous articles of interest and importance. Perhaps the most interest centres in the *Emu*, the organ of the Australasian Ornithologists' Union, which has just completed its first year. The illustrations are one of its best features, but the various articles have been of great importance and very readable, especially those dealing with the natural history of Australian and Tasmanian birds. The *Auk*, the American organ, and the *Ibis*, the British organ, have both been extremely interesting and are ably edited and well illustrated, and *Bird Lore*, the organ of the Audubon societies, has fully maintained its own high standard. Turning now to the papers, pamphlets, and books which have been issued, we find such a wealth of material that it is hard to select those most worthy of mention. Among those dealing with birds of a definite area, the most important work is undoubtedly the second volume of Ridgway's *Birds of North and Middle America*, the first part of which was issued in 1901. This second part includes only four families, the tanagers, troupials, honey-creepers, and wood-warblers, but the book contains over 850 pages and has 22 plates, illustrating details of the external morphology. There are 112 tanagers, 111 troupials (including what are known in the United States as blackbirds, orioles, meadow-larks, and bobolinks), 29 honey-creepers, and 181 warblers, a total of 433 species and subspecies, but it is only fair to state that a very large proportion of these are what to the non-specialist are, to say the least, questionable species. Though not so important to ornithologists, Mrs. Bailey's *Handbook of Birds of the Western United States* is of more general interest to the public, at least to those who live west of the Mississippi Valley. It is a volume of over 600 pages, with 33 full-page plates, and over 600 cuts, planned along the same lines as Chapman's well-known handbook of the birds of the eastern United States. It will undoubtedly prove one of the most useful of American books on birds. A somewhat similar work, though much simpler in form and style is Henshaw's *Birds of the Hawaiian Islands*, a volume of 146 pages, with notes concerning and descriptions of 125 birds, of which no less than 60 are endemic woodland passeres, peculiar to the islands. It is sad to learn that one-sixth of these are approaching extinction. A very valuable paper on the ornithology of an out-of-the-way place is Brewster's *Birds of the Cape Region of Lower California*, a volume of 241 pages, treating of 255

kinds of birds, though 88 are subspecies. The region included is an isolated mountainous section about 120 miles north and south by 85 east and west. Another valuable paper of the same kind is Berlepsch's and Hartert's *On the Birds of the Orinoco Region,* a volume of 134 pages, based on a collection of several thousand specimens, representing 468 species and subspecies. There are many valuable notes on questions of nomenclature and distribution. Of systematic works, Dubois's *Synopsis Avium* is now completed through the first volume, and it consists of about 740 pages, with 12 plates. It treats of 9417 species and 2477 additional subspecies, and covers most of the land birds. Any working ornithologist will welcome Richmond's *List of Generic Names Proposed for Birds During the Years 1890 to 1900 Inclusive,* a report of 66 pages, including 475 names. As a striking example of the abuse of the trinomial system of nomenclature, Oberholser's *Review of the Larks of the Genus Otocoris* affords the opportunity for an attack on that system. Of the common American horned lark no less than 23 subspecies are recognized and named. Of strictly morphological papers, Shufeldt's contributions to our knowledge of the osteology of birds have continued to appear, and are of the greatest value, while Strong's publications regarding the development, structure, and color of feathers are of unusual importance. Before passing on to popular books, mention should be made of the second volume of Oates's *Catalogue of the Collection of Birds' Eggs in the British Museum.* This is a book of over 200 pages, illustrated with 14 beautifully colored plates. Among the numerous books intended to interest the general public, first place may perhaps be assigned to Job's *Among the Waterfowl,* a volume of nearly 250 pages, with numerous illustrations from photographs by the author. In an entertaining manner, and fortunately with due accuracy, Mr. Job tells of the natural history of auks, murres, grebes, gulls, ducks, and other aquatic birds, with especially good accounts of the breeding habits, based on the author's observations in Dakota, the Magdalen Islands, Bird Rock, and on islands off the New England coast. Another American book of great merit is Sandys's and Van Dyke's *Upland Game Birds,* a volume of 438 pages treating of the birds most sought by sportsmen. Most of the book is by Mr. Sandys, who is gifted with a real love for his subject and a charming style. A much more expensive volume of a similar sort is *The Natural History of the British Surface-Feeding Ducks,* a magnificent quarto by the artist Millais, who here shows himself as well an author and observer of the first class. Although only ten species are included in the book, it is a quarto volume, weighing nearly nine pounds, and has numerous illustrations, including 41 colored plates of exceptional merit. Still another volume of special interest to sportsmen is Witherby's *Bird Hunting on the White Nile,* a small book of 117 pages, very interestingly written, and full of valuable information regarding the human, as well as the avian, inhabitants of the regions traversed. Finally, we may mention Keyser's *Birds of the Rockies,* a beautifully prepared volume of nearly 400 pages with a fair number of illustrations, including four colored plates. The book is especially intended for the bird-loving amateur, and is a valuable addition to that class of literature.

OSBORNE, William McKinley, United States consul-general at London, England, died there April 29, 1902. He was born April 26, 1842, in Girard, O., studied at Poland Seminary in Ohio, entered Alleghany College, and when the Civil War broke out joined the Twenty-third Ohio Regiment. In 1862, his military career being ended by an attack of typhoid fever, he studied law, was admitted to the bar in 1864, and began practising in Youngstown, O., where he was elected mayor in 1874. In 1880 he removed to Boston; in 1883 was elected to the Boston board of police, but was removed in 1893 on account of allegations made by Mayor Matthews. In 1896 he was secretary of the national Republican committee, and in 1897 was appointed consul-general in London. He was a cousin of President McKinley.

OSMUN, Thomas Embley, an American orthoëpist, elocutionist, and critic, better known by his pseudonym of "Alfred Ayres," died in New York City, October 26, 1902. He was born in Montrose, Summit County, O., February 26, 1834, and was educated first at Cleveland, O., and then at Oberlin College. After six years of advanced study in Berlin and Paris, he returned to the United States, and began to contribute extensively to periodicals, especially to the *Dramatic Mirror, Werner's Magazine,* and the New York *Clipper.* His writings, which are, in the main, expositions of his theories of elocution, attained considerable circulation and provoked much journalistic criticism. They had much to do, however, with the correction of many prevalent mispronunciations and of errors in the use of words, though the constant critical attitude of their author made him personally unpopular. He was an editor of the *Standard Dictionary,* and wrote *The Orthoëpist* (1880); *The Verbalist* (1881); *Acting and Actors* (1894); *The Mentor* (1897); *The Essentials of Elocution* (1897); *Some Ill-Used Words* (1901).

OSTEOPATHY. The osteopaths have made determined efforts during 1902 to obtain official recognition in several States with varying success. The Brackett bill to regulate and legalize the practice of osteopathy in New York State provoked much discussion. Several United States senators were said to have "faith" in osteopathy, but the medical societies throughout the State organized a determined opposition, and the bill was defeated in January. In Massachusetts the bill authorizing the Boston Institute of Osteopathy to grant the degree of doctor of osteopathy has been defeated in the house of representatives, being opposed by the State board of education, the board of medical registration, and by the heads of other educational institutions in that State. In Iowa the legislature has passed a bill in recognition of the osteopaths, and authorized the State board of medical examiners to issue certificates to graduates of osteopathic colleges and to others who pass examination, and has authorized the choice by the governor of an osteopath to become a member of the State board of health and State board of medical examiners.

OTEY, Peter Johnston, American financier and politician, died in Lynchburg, Va., May 4, 1902. He was born in Lynchburg, December 22, 1840, and graduated at the Virginia Military Institute in 1860. He then took up railroad engineering work, and at the outbreak of the Civil War joined the Confederate army, participating in the western campaign that ended with the capture of Fort Donelson and the battle of Shiloh. From then until the end of the war he was with the Army of Northern Virginia, and was in command of a brigade under General Early. He became interested in railroad and banking affairs in 1869, and prominent in Virginia politics. In 1894 he was elected member of Congress from the sixth Virginia district.

OTHOPLASY. See Biology.

PACIFIC CABLES. The year 1902 was a notable one in the history of submarine cable laying, witnessing the completion of the All-British cable from Australia to Canada, and the beginning of the All-American cable which is to connect the United States and the Philippines. The All-British cable, the laying of which was begun in 1901, was completed on October 31, 1902, and opened for public messages on December 8. Its total length is about 7800 miles, and its total cost, including the expense of surveying and installation will amount to £1,999,000 ($9,728,133). It was constructed and laid by the Telegraph Construction and Maintenance Company, a London corporation. The expense was borne by the British government, and the governments of Canada and some of the States of the Australian commonwealth, and New Zealand in the following proportion: Great Britain, five-eighteenths; Canada, five-eighteenths; and New South Wales, Victoria, Queensland, and New Zealand, one-ninth each. The line runs from Vancouver, British Columbia, via Fanning (or Palmyra) Island and Fiji, to Norfolk Island, where it branches to Queensland and New Zealand respectively. On November 13 it was announced that the rate per word for cable messages between England and Australia had been set at 3s., the tariff by previous routes having been 9s. 4d. a word.

On August 10, 1902, the conditions were made public, upon the acceptance of which the President would give his assent to the proposition of the Pacific Commercial Cable Company organized by John W. Mackay and associates in September, 1901, for the laying of an All-American cable via Hawaii to the Philippines and thence to some point on the coast of China. These conditions, based partly on the Post Roads act of 1866, were in effect: that the company should enter no arrangement debarring other American companies from landing cables in China or connecting with island or coast lines there; that the company's line should touch at no other than American points between San Francisco and China, and that the line from the Philippines to China should be wholly independent of all foreign lines, thus rendering the United States independent of the existing English line from Manila to Hong Kong; that the rates charged should not exceed one dollar a word from San Francisco to Manila or China, nor more than 35 cents from San Francisco to Honolulu from the time that that line had been in operation two years, and till then not more than 50 cents; that after the completion of the line all operators and employees of the company above the grade of laborer should be American citizens; that government messages should have a priority over all others, the rate for these to be fixed annually by the postmaster-general; that at any time the United States should have a right to buy the cable at a fair appraised value; that in the event of war the United States should take full control of the cable in its discretion, sever branch lines at will and declare void any contracts entered into with foreign governments by the cable company. Upon the acceptance of these conditions, which may be revoked or modified by the President at any time, the United States agreed to turn over to the Pacific Commercial Cable Company the right to use the exhaustive soundings in the Pacific, made by the United States navy at a cost of over $200,000. In October, although it had not signified its acceptance of the government's terms,

the company proceeded to contract for a cable. After a conference between agents of the company and Attorney-General Knox on November 24 the company finally announced its acceptance of the conditions; on December 16 the American end of the cable was landed at San Francisco, and the steamship *Silverton* started for Honolulu with the cable on board. On December 26 the cable was landed near Honolulu, in the Hawaiian Islands, and the first message transmitted. From Honolulu the cable will be laid via Midway Island and Guam to Manila, it being expected that the complete line to the China coast will be in operation by the summer of 1903.

PAINTING. The year 1902, especially in the United States and Great Britain, was singularly devoid of interest, at least in the production or exhibition of notable works. The record for the year is little more, for the most part, than a catalogue of local exhibitions and a necrology. In the United States the original scheme for the painted decoration of the Louisiana Purchase Exposition buildings at St. Louis placed the matter in charge of a committee of ten leading painters who were to do a great part of the work themselves. This plan created so much opposition that a single commissioner has been substituted, and Mr. F. D. Millet appointed to that position. The usual exhibitions of the National Academy, the Social of American Artists and the Water-Color Society were held in the Fine Arts Building in Fifty-seventh Street, New York City. The Clark prize of the National Academy was won by Mr. Charles Schreyvogel, a painter of Western life in the style of Remington. Albert Bierstadt, an American landscape painter of the old school, died March 6.

In England the Royal Academy winter exhibition of old masters made a specialty of Claude Lorrain, showing a fine series of his paintings and drawings. At the regular exhibition of the Royal Academy there were several important portraits by the American painter, Sargent, and many good landscapes. The exhibition at the New Gallery was devoted to portraits and relics of the monarchs of Great Britain. There was an important exhibition of landscapes at the Dudley Gallery in London. The English artist, Sidney Cooper, died February 7, 1902.

The two Salons, as the exhibitions of the Société des Artistes Français and the Société Nationale des Beaux Arts are called, were both held in the larger of the two art palaces built for the Exposition of 1900 in Paris. In the first, especially interesting works were: "The Glorification" of Colbert, a design for Gobelins tapestry, by J. P. Laurens, and large decorations for the Hôtel de Ville by Détaille, representing scenes from the French Revolution. In the second, especially noticeable were the "Ile heureuse," by Besnard, and the "Jour de paix et de joie," by Victor Prouvé. In the Prix de Rome competition the first prize in painting was won by Mr. Sieffert, a pupil of Gérôme; the second by M. Guétin, a pupil of Lefebvre, Benjamin Constant, and Tony Robert-Fleury. The subject was the "Raising of Jairus's Daughter."

The Thomy-Thiery collection, which is rich in French paintings, especially of the Fontainebleau school, and in Barye bronzes, has been presented to the Louvre. Tadamasa Hayashi, commissary general for Japan at the Exposition of 1900, who published a large folio on that section, has sold his collection of Japanese pictures and art objects in Paris. The atelier of the painter Gustave Moreau, with an extraordinary collection of his paintings and drawings, has been presented to the minister of public instruction as a museum. The arrangement of this collection has excited much comment. The painter Benjamin Constant died May 26, 1902. There was an important sale of his works by Christie, Manson, and Wood in London on July 14. The religious painter, James Tissot, whose remarkable paintings of the Life of Christ were acquired by the Brooklyn Institute, died August 3, 1902. Louis Deschamps died August 8. M. Eugene Müntz, the learned historian of the Italian Renaissance and librarian of the Ecole des Beaux-Arts, died October 30. J. G. Vibert died in July.

An extremely interesting exhibition of early Flemish painting was held at the provincial palace in Bruges, Belgium, in May.

In Germany the movement called the Secession, which includes the large body of younger and more independent artists, becomes stronger each year, and holds exhibitions in all the larger cities. The most important of these is in Vienna, which in 1902 contained a fine series of works by Boecklin, Franz Stuck, Max Klinger, and Rudolf Alt, who recently completed his ninetieth year. At the Berlin Secession, notable pictures were: Max Liebermann's "Delila," Max Slevogt's "d'Andrade as Don Juan," and "A Spanish Company," by Zuloaga, who works in the manner of Goya. The great summer exhibition in the glass palace in Munich occurred as usual. All the larger German cities hold regular annual art exhibitions. A notable collection of the works of Boecklin was shown in Dresden.

The most important incident of the year in Italy has been the purchase by the Italian government of the superb Borghese collection of paintings. The price was 3,600,000 lire in annuities. The chief picture in this collection is the "Sacred and

Profane Love" by Titian. A considerable quantity of decoration has been discovered in the Sala delle Asse of the Castello in Milan, which is undoubtedly the work of Leonardo da Vinci done in the time of Lodovico il Moro. A picture has been found in the church of the village of Affori, near Milan, which is either the original or an early replica of the Madonna of the Grotto by Leonardo da Vinci.

PALEONTOLOGY. See GEOLOGY.

PALESTINE. See ARCHÆOLOGY (paragraphs on Syria and Palestine); see also these paragraphs for the Palestine Exploration Fund.

PALMER, ALICE FREEMAN, former president of Wellesley College, died in Paris, France, December 6, 1902. She was born in Colesville, N. Y., February 21, 1855, and in 1876 graduated at the University of Michigan. After teaching for a while in Michigan and Wisconsin schools she was appointed in 1879 to the chair of history in Wellesley College, and in 1882 she succeeded Miss A. L. Howard as second president. During the five years that she acted as the head of Wellesley she established important relations with secondary schools, coordinated the courses of study and raised the standard of scholarship, and was very successful in securing the endowments and financial patronage of which the young institution was in great need. She resigned in 1887 to become the wife of George Herbert Palmer, professor of philosophy at Harvard, but continued to serve on the board of trustees; and her subsequent services in the interests of many institutions made her an international influence in educational affairs. In 1889 she was made a member of the Massachusetts Board of Education, in 1892 a member of the Massachusetts Board of Managers at the World's Fair, and advisory dean of the women's department of Chicago University, and she was long a trustee of the International Institute for Girls in Madrid.

PANAMA CANAL. See ISTHMIAN CANAL.

PAN-AMERICAN CONFERENCE. See MEXICO (paragraph Pan-American Conference).

PAN-GERMANISM. See AUSTRIA-HUNGARY (paragraph Pan-Germanism).

PAPUA. See NEW GUINEA.

PARAGUAY, an interior South American republic, lying between Bolivia, Brazil, and Argentina. The capital is Asunción.

Area and Population.—The area of Paraguay is not known, and the widely varying figures given—from 89,000 to 157,000 square miles—are hardly accounted for by the still undetermined boundary with Bolivia. An estimate published in 1902 placed the area at about 121,000 square miles. According to the enumeration of 1899 the population was about 635,000, of whom about 100,000 were Indians and most of the remainder mestizos. The war of 1865-70 almost exterminated the male inhabitants, but in 1899 males comprised about 47 per cent. of the whole population. The population of Asunción on July 1, 1902, was 51,719. Roman Catholicism is the state religion. Primary instruction is free, secular, and nominally compulsory. In respect of public instruction, Paraguay, as compared with other Latin-American countries, is remarkably progressive.

Government.—The executive authority rests with a president, who is chosen by an electoral college, and is assisted by a responsible ministry. The legislative power devolves upon a congress of two houses, the senate (50 members), and the chamber of deputies (100). The presidential office in 1902 was occupied successively by Señores Aceval, Carvallo, and Ezcurra (see paragraph Events of 1902). The army numbers about 1600 men.

Finance.—The gold peso is worth approximately one dollar in United States money; but Paraguayan finance is on a paper basis, and the value of the paper peso, the chief circulating medium, which was about 14 cents in 1900, has since declined to something less than 12 cents. In the fiscal year 1900 revenue and expenditure in currency amounted to 9,856,063 pesos and 8,122,139 pesos respectively. In the following year the revenue was 11,412,747 pesos (1,342,676 pesos gold), of which 9,930,348 pesos were derived from customs and 1,220,247 pesos from internal taxation. The revenue in 1882 was 810,506 pesos (having the same value in gold), and in 1890, 1,736,113 pesos (1,157,409 pesos gold).

According to a publication of the Asunción chamber of commerce, the outstanding foreign debt on December 31, 1901, was 4,787,077 pesos gold, and the internal debt 11,043,471 pesos paper (including 10,566,171 pesos of notes in circulation). The government, however, is debited with other amounts—to the Paraguayan Central Railway, Argentina, Brazil, etc.—which aggregate, in face value, nearly $26,000,000.

Industries, Commerce, etc.—Cattle raising is the most important industry, and yerba maté, or Paraguay tea, the most important agricultural product. According to the Paraguayan bureau of statistics, the values in gold pesos of imports and exports have been respectively.

	1882	1890	1899	1900	1901	1902
Imports	1,320,326	2,721,443	2,147,837	2,655,741	3,003,657	2,050,000
Exports	1,650,679	2,900,729	2,500,000	2,707,074	2,529,306	3,252,652

The leading imports are textiles, wines, and rice; the chief exports, yerba maté, hides, timber, oranges, and tobacco. About one-half of the imports in 1901 were German, and one-fourth British. In 1902 the import trade was unsatisfactory, since in many instances the exceptionally high premium on gold—about one thousand per cent.—had rendered business impossible.

There is one railway, 156 miles in length, connecting Asunción with Pirapó. In 1900 the post-offices numbered 142.

Events of 1902.—In January, 1902, a political crisis at Asunción, growing out of the question of the presidential succession, resulted in the overthrow of the government and the resignation of President Emilio Aceval, who, in 1898, was elected for the term ending November 25, 1902. The trouble came about over the refusal of Señor Aceval to support the cause of Señor Guillermo Rios, the military, or "revolutionary," candidate for the presidency. On January 9 several "generals," leaders of the military group of the Republican party, threw the president into prison, where he remained until he resigned a few days later. As the congress hesitated to accept this enforced resignation, the generals hastened matters by opening fire on the legislators, killing one and wounding several, among the latter "one of the most renowned of Paraguay's Napoleons." But the promising ambitions of Señor Rios were not fulfilled, for at the election held about October 1, and afterwards ratified by the congress, Señor Juan Ezcurra, the minister of war, was raised by the Republican party to the post of chief magistrate. A competitor of Señor Ezcurra, Dr. Cecilio Baez, represented the Liberal party. Señor Manuel Dominguez, the minister for foreign affairs, was elected vice-president. The inauguration took place on November 25, 1902. At the end of the year the military oligarchy—Señor Ezcurra, who is himself a colonel, had a prominent part in the proceedings of the "generals"—was in full administrative control, but the political situation was anything but settled and it seemed quite possible that the new president, or, more properly, dictator, would not hold office throughout the constitutional term. From the resignation of Señor Aceval to the inauguration of Señor Ezcurra the chief executive, upon vote of the congress, was Señor Hector Carvallo, who had been vice-president.

A general arbitration treaty between Paraguay and Argentina was concluded November 6, 1899. Subsequently the treaty was amended, and on June 5, 1902, ratifications were finally exchanged. The treaty provides for the arbitration of "all controversies of whatever nature" which may arise between the two countries and "which do not affect the provisions of the constitution of either country."

PARALLAX, STELLAR. See ASTRONOMICAL PROGRESS.

PARKER, FRANCIS WAYLAND, an American educator, died on March 2, 1902. He was born in Bedford, N. H., October 9, 1837; worked on a farm, was a New England school teacher, became principal of a school at Carrolton, Greene County, Ill., and, unable there to enlist in the Federal army, entered the Fourth New Hampshire Infantry as a private. During his military service, wholly in the east, along the lower seaboard and in Virginia and North Carolina, he rose to the colonelcy of his regiment, and in August, 1865, was mustered out. On leave in 1864, he stumped New Hampshire for Lincoln. After the war, he resumed teaching, from 1872 to 1875 studied at the University of Berlin, and from 1875 to 1880 was superintendent of schools at Quincy, Mass., in the administration of which office he aroused wide interest, and, it is said, attracted to the inspection of the institutions under his charge more than 30,000 visitors. He was a supervisor of schools in Boston in 1880-83, and principal of the Cook County (later the Chicago) Normal School from 1883 to 1899. In 1899 he was elected the first president of the Chicago Institute, a school of pedagogy founded in that year. He was known for his individual application to educational problems of the methods of Pestalozzi and other theorists. In addition to his administrative work, he lectured much, and published *Talks on Teaching* (1883); *The Practical Teacher* (1884); *How to Study Geography* (1889); and other volumes.

PARKER, JOSEPH, an English clergyman, died November 28, 1902, in London. He was born April 9, 1830, at Hexham, Northumberland. Tutoring by private instructors was supplemented by a course at University College, London, and at the age of twenty-three years he became minister of a Congregational chapel in Banbury. The parish was in debt and he refused to leave it in that condition, when, after a few years, he received a call to a wealthy church in Manchester, but in 1858 the Manchester church proposed to pay off the debt and the call was accepted. He went to the old Poultry Chapel in London in 1869, and in 1874 the City Temple was

completed and opened to his growing congregation. One of the most remarkable features of his ministry was the noon-day service on Thursdays, which was often attended by 1000 people, mostly business men, who took the keenest interest in his eloquent discussions of questions of the hour. While at Manchester he received the honors of the chairmanship of the Lancashire Congregational Union and of the Manchester Congregational board, later filled corresponding offices in London, and was twice chairman of the Congregational Union of England and Wales. He was a voluminous writer, his *People's Bible* alone containing something like 750,000 words, and he was regarded as "almost a prophet" even by those who did not care for his striking style of extemporaneous speaking. Some of his works which demand mention are: *Ecce Deus; The Paraclete; To-Day's Bible; To-Day's Christ; Christian Profiles in a Pagan Mirror; A Preacher's Life; An Autobiography and an Album.*

PAUL, CHARLES KEGAN, an English publisher and author, died July 19, 1902. He was born at White Lackington, near Ilminster, Somerset, March 8, 1828, and studied at Eton and at Exeter College, Oxford. Influenced by the teachings of Frederic Maurice and Charles Kingsley, he took orders, becoming curate of Great Tew and later of Bloxam. In 1853 he was appointed master at Eton, and in 1862 assumed the vicarage of Sturminster in Dorsetshire. Twelve years later his Anglican opinions having given way to Positivist doctrines, he resigned his living, went to London, and engaged as a publisher's reader. He translated *Faust,* wrote the life of Godwin, and edited the *Letters* of Mary Wollstonecraft. In the publishing business, his high intellectual standards and keen literary taste were rather a hindrance to large pecuniary success. He showed a friendly disposition toward younger writers, published some of the early works of Stevenson and *The Egoist* of George Meredith. He also published Bodger's *English-Arabic Lexicon,* Hake's *Journals of Chinese Gordon,* and launched the *Nineteenth Century.* After his withdrawal from active life, his growing tendency toward the Church of Rome received an impetus from the reported miracles at Lourdes, and he formally entered that communion. During his leisure he translated Huysman's *En Route* and wrote a volume of *Memories.* His other works not already mentioned are: *Maria Drummond, a Sketch; Faith and Unfaith;* and *By the Wayside.*

PAUNCEFOTE, Right Hon. Sir JULIAN, First Baron Pauncefote of Preston, British ambassador to the United States, died in Washington, D. C., May 24, 1902. He was born in Munich, Bavaria, September 13, 1828, was educated in Paris, Geneva, and at Marlborough College, and was called to the bar in 1852. In 1865 he received his first important official appointment, that of attorney-general of Hong Kong, and in 1869 was made chief justice. His subsequent career, in which his legal abilities and large knowledge of British colonial affairs played an important part, was mostly divided between official service in London and the ambassadorship at Washington, in which latter position he had, according to unbiased judges, more to do with promoting friendly relations between the United States and Great Britain than any other ambassador to this country. After a short term as chief justice of the Leeward Islands (1873-74), he was appointed, in 1874, legal assistant under-secretary of state for the colonies, and in 1876 was made legal assistant under-secretary of state for foreign affairs. In 1887 he succeeded Lord Tenterden as permanent under-secretary of state for foreign affairs. After the enforced departure in 1888 of Lord Sackville-West, British minister at Washington, Pauncefote succeeded him and remained in that office for fourteen years, under conditions which for a large part of the time called for exceptional tact, insight, and large political views. In 1893 he was promoted to the rank of ambassador extraordinary and plenipotentiary. The issue of President Cleveland's Venezuelan message to Congress in 1895 aroused ill-feeling between Great Britain and this country, and it is within bounds to say that Lord Pauncefote's high personal character and official influence, especially the confidence reposed in him by the British government, were important factors in effecting a satisfactory and peaceful result. Afterwards, during the sittings of the Anglo-American Joint High Commission, as well as during the negotiations concerning the isthmian canal, whose friendly settlement was assured by the Hay-Pauncefote Treaty in 1901, his influence was potent for conciliation. In 1899 he was raised to the peerage, and in the same year was a delegate to the International Peace Conference at The Hague. To his efforts and to those of the American delegates was largely due the establishment of the permanent arbitration tribunal.

PAUPERISM. See CHARITY ORGANIZATION.

PAVEMENTS, STREETS, and ROADS. Recent notable features of street paving are the increasing use of bituminous macadam, and also of wood blocks carefully treated to prevent decay and to lessen disintegration by traffic. Asphalt continues in favor in many sections of the country, but its adoption has been retarded by the belief of engineers and municipal officials that an unduly high price was being maintained by a combination of the asphalt interests, and by unwarranted attempts

to prevent the use of asphalt from deposits not controlled by the combination. During 1902 the price of asphalt in a number of cities was reduced by competition or the fear of it, and perhaps by the financial embarrassments of the big asphalt companies. Thus far asphalt has been used but little in New England, nor has brick been extensively employed for pavements there. Nearer the paving brick producing centres that material is still the chief one employed for permanent work. Macadam is hardly classed with the permanent pavements, like asphalt, brick, wood, and stone, but it is hoped that the bituminous macadam will prove far more durable than the ordinary macadam, in which the binding material is powdered stone or clayey loam. Bituminous macadam is formed by thoroughly mixing broken stone of graded sizes and carefully prepared gas-works tar. The successively finer grades of stone are designed to fill the voids between the separate particles, while the tar coats each piece of stone and binds the whole together. The wood blocks for the more permanent wood pavements are treated with creosote or some other antiseptic, and in one process resin is added to decrease the porosity and increase the hardness of the hard pine blocks. Brick for paving use is a vitrified product, tough, hard, and of as uniform a composition as possible. Extended investigations of the manufacture and testing of paving brick have been carried on for a number of years past by and in behalf of the National Brick Manufacturers' Association (permanent headquarters, Indianapolis, Ind.). The association now has a committee on technical research which has submitted some valuable reports on paving brick.

Street Cleaning.—Bacterial studies of street dust in New York City show the beneficial effects of smooth pavements and thorough street cleaning. Agar culture plates were exposed for fifteen minutes at the curb level and six feet above it, and bacterial counts were made of the growths on the plates. The results were thus summarized by Dr. John M. Woodbury, commissioner of street cleaning, in his report for the third quarter of 1902:

"In places where there was a large amount of traffic, where pushcarts were in large numbers, in a tenement district densely populated, as many as 9600 colonies appeared in a fifteen-minute exposure. In another part of the city, where the pavement was asphalt, although the traffic at this point was quite heavy, the location residential and the avenue well flushed, only 54 colonies were found on a fifteen-minute exposure, while in another portion of the city, upon a well-cleaned, flushed asphalt pavement, where traffic is extremely light, and where the surrounding property is entirely residential, at six feet above the curb line but five colonies were found."

In all, there were seven series of observations, at six stations. Dr. Woodbury favors washing streets with hose to prevent street dust.

A paper on "The Sanitation of Road Traffic" was read before the Sanitary Congress at Manchester, England, in 1902, by Mr. E. G. Mawbey, an engineer of Leicester, England. (The lecture will probably appear in the *Journal of the Sanitary Institute*, 1903.) Mr. Mawbey took an extreme view of the dangers from street dirt and dust, but much that he said is doubtless justified by experimental and practical knowledge. Thus he says of street dirt:

"In dry weather, and with only moderate breezes, notwithstanding good ordinary scavenging and watering, this dry, complex, and more or less foul matter is blown about in the air we breathe, both indoors as well as in the open, and upon the cooked foods, sweets, fruits, etc., exposed for sale, and also into the milk served in open vessels. It is well known that the dust from street surfaces contains bacteria generated from the excretal and other organic and vegetable matters which are more or less injurious to the throat, lungs, and stomach, and also to the eyes as well as other organs, and perhaps to this foul matter is due the existence of many of the flies which are known to be carriers of infection."

To lessen the street dirt Mr. Mawbey wisely suggests the extension of hard, smooth, well-jointed, and readily cleansed pavements; the extension "of the system of thoroughly washing street pavements"; street sweeping at night, preceded by sprinkling; frequent sweeping in densely populated districts; and copious watering and deodorizing of certain streets and public places in hot weather.

The street cleaning department of the city of Detroit has a reputation for good work. Its methods and results were described by Mr. D. W. H. Moreland, commissioner of public works, in a paper before the League of American Municipalities (see *Proceedings* for 1902, Des Moines, Ia.). In brief, the work in the centre of the city is done by about 100 men in white uniforms, with brooms, shovels, and pushcarts, while the remainder of the city is cleaned largely by machines. During the year ending June 30, 1902, a total of $158,000 was expended for street cleaning, including new sweeping machines and hand tools.

Road improvements in suburban and rural districts are being pushed forward in many sections of the country. Either ordinary macadam or gravel is used for this purpose, the former being more permanent and also more expensive than the latter.

State road construction, or, at least, State aid with more or less State supervision, still continues in Massachusetts, Connecticut, New York, and New Jersey, and some other States are directly or indirectly furthering highway improvements. In Maryland important investigations of the conditions and needs of the roads of the State and valuable studies of road-making materials, have been entrusted by the legislature to the State Geological Survey. Convict labor is extensively employed on road work in the South. An important study of this practice has been made by Mr. J. A. Holmes (*Year Book* of the United States Department of Agriculture, Washington, 1902). In this paper, "Road Building with Convict Labor in the Southern States," Mr. Holmes describes the management of the convict road force, and also roads built by convicts in Georgia, Tennessee, and the Carolinas. He states, at the outset, that the belief prevails in the Southern States, "that perhaps the best way in which a criminal can benefit the community he has injured is in helping to improve its public highways." In most of the Southern States the employment of convict labor on the roads has been practiced for a number of years, and its desirability is accepted as beyond question, particularly as this class of work is said to be unattractive to hired labor in the South. The extent of the practice, and also some interesting financial statistics relating thereto, are shown by the accompanying table from Mr. Holmes's paper.

EMPLOYMENT OF CONVICT LABOR ON ROADS IN THE SOUTHERN STATES.

(From *Year Book*, Department of Agriculture, 1902.)

States.	Number of Counties.	Counties Using Convicts on Public Roads.	Average Number of Convicts on Public Roads During 1900.	Average Cost Guarding and Maintenance per Convict per Day on Roads.	Average Cost of Prisoner per Day for Keeping in County Jails.	Number of Prisoners Usually Kept in County Jails, and Not Used on Roads.	Average Cost of Hired Road Labor Per Day.	Yearly Value of Labor of Convicts Used on Public Roads in 1900.*	Yearly Value of Labor Prisoners Usually Kept in County Jails and Not Used on Roads.
Alabama	66	2	25	$0.81†	$0.30	789	$0.90	$6,187	$195,387
Arkansas	75	21	62	.85†	.75	320	.95	16,197	83,600
Florida	45	11	106	.46	.40	437	.92	26,818	110,561
Georgia	137	27	946	.26	.35	1,073	.60	156,080	177,045
Kentucky	119	42	419	.52	.50	583	1.00	115,225	160,325
Louisiana	59	9	67	.50	.40	337	1.00	18,425	92,675
Mississippi	75	17	113	.25	.30	397	.60	18,645	65,405
North Carolina	97	24	643	.24	.30	607	.75	133,508	125,193
South Carolina	40	32	579	.18	.30	404	.75	119,418	83,325
Tennessee	96	37	722	.26	.40	888	.80	158,740	195,360
Texas	229	65	672	.30	.45	1,197	1.15	211,520	378,551
Virginia	100	5	23	.38	.30	329	.80	5,060	72,380
Total or average	1,138	287	4,377	$0.33¼†	$0.35‡	7,361§	$0.85	$985,823	$1,739,807

* In estimating the value of this convict labor the per diem paid ordinary laborers in the respective States as shown in the column giving the average cost of hired road labor per day is taken as a basis; and it is assumed that 275 work days may be reasonably counted upon for these States.

† In determining this average the figures for Alabama and Arkansas were omitted, owing to the probability that certain expenses connected with the maintenance of the teams have been, by mistake, included in the figures reported from these States.

‡ In determining this average the figures for Arkansas have been omitted as being abnormally high.

§ Concerning this total number of prisoners in the county jails of these 12 States, it should be stated that an unknown proportion, probably in some States at least 50%, of these are persons awaiting trial and unable to give bond. This situation may continue for from a few days to several months. The remainder of these prisoners have already been tried and convicted, but remain in jail idle, at the expense of the county, for the reason that no employment is provided for them.

PEARCE, CHARLES EDWARD, former congressman from Missouri, died in St. Louis, Mo., January 30, 1902. He was born in Whitesboro, N. Y., May 29, 1842, and in 1863 graduated at Union College. He then enlisted in the Union army and served as captain and major of the Sixteenth New York Heavy Artillery. He was present at the battles before Petersburg and Richmond and the capture of Fort Fisher, was on the staff of Major-General Terry, and acted for a time as provost-marshal-general of the Eastern District of North Carolina. In 1866 he removed to St. Louis, was admitted to the bar in 1867, was commander of the St. Louis National Guard in 1875, and was organizer and first colonel of the First Regiment (militia) in that city. In 1888 he was a delegate to the Republican National Convention, served as chairman of the Sioux Treaty Commission in 1891, traveled extensively in China, Japan, and India to study economic conditions, and from 1897-1901 was Republican Congressman from the twelfth Missouri district.

PELEWS. These islands are treated under CAROLINE ISLANDS.

PENNOYER, SYLVESTER, ex-governor of Oregon, died at Portland in that State on May 30, 1902. He was born at Groton, N. Y., July 6, 1831, and graduated at the Harvard Law School in 1854. Removing soon afterwards to Oregon, he taught school, and in 1862 became a lumber merchant in Portland. A few years afterwards he attracted attention by his articles in the *Oregon Herald,* and from that time was recognized as an able writer on current political topics. In his articles and speeches he adopted a very sympathetic attitude toward workingmen, and by that means became their spokesman in the agitation against Chinese immigration. In 1886 he was elected governor of Oregon as a Democrat, although all the other successful State candidates were on the Republican ticket. He held the governorship for two terms, and in office showed great decision of character, occasionally offending against official propriety, as in the case of his message to President Cleveland warning him against interference when the latter proposed a plan to end railroad strikes in Oregon. He vetoed laws for the issue of non-taxable bonds for certain purposes, showing his friendship for the workingman in this and other public acts, and winking officially at the riots of the Oregon Pacific Railroad employees. He was not so strict in fulfilling his ante-election promises regarding Chinese immigration as was expected of him. His popularity after his retirement from the governorship was attested by his election as mayor of Portland in 1896.

PENNSYLVANIA, an eastern State of the United States, has an area of 45,215 square miles. The capital is Harrisburg. Pennsylvania was one of the original thirteen States of the Union. The population, in 1900, was 6,302,115, and in June, 1902, as estimated by the government actuary, 6,522,000. The populations of the five largest cities in 1900 were: Philadelphia, the third largest city in the United States, 1,293,697, an increase of 246,733 since 1890; Pittsburg, 321,616; Allegheny, 129,896; Scranton, 102,026; and Reading, 78,961.

Finance.—The balance on hand, December 1, 1901, was $7,708,022.18. The total receipts of the treasury during the year were $22,947,890.65. The total expenditures during the year were $17,787,106.19, leaving a balance on hand, November 30, 1902, of $12,868,806.64. The total debt on December 1, 1902, was $4,806,649.02, of which $4,672,500 was funded and $134,149.02 was unfunded. The debt was reduced by the amount of $2,008,650 during the year.

Agriculture and Industries.—The principal field crops of Pennsylvania for 1902, according to the *Crop Reporter,* were: Corn, 1,486,383 acres, 53,658,426 bushels, $31,121,887; winter wheat, 1,558,745 acres, 24,628,171 bushels, $17,978,565; oats, 1,233,868 acres, 45,036,182 bushels, $15,312,302; buckwheat, 247,250 acres, 5,475,225 bushels, $2,729,887; potatoes, 246,619 acres, 20,469,377 bushels, $11,667,545; hay, 3,103,363 acres, 3,693,002 tons, $51,702,028; tobacco, 17,269 acres, 22,017,975 pounds, $1,761,438.

Notwithstanding the practical cessation of anthracite mining from May until October on account of the strike of the United Mine Workers of America (see STRIKES, paragraph Anthracite Coal Strike) the State of Pennsylvania easily maintained its place as the first producer of coal. The output in 1902 was approximately 45,000,000 short tons of anthracite and 95,000,000 short tons of bituminous coal. The Pittsburg district increased its production from 82,099,906 tons in 1901 to about 100,000,000 tons in 1902—over one-third the entire production of bituminous coal in the United States. About one-half the coke produced in the United States was made in this district. Coke and coal together were worth at the ovens and mines over half a billion dollars. There were about 35,000 coking ovens in operation in the Connellsville district. The Pittsburg Coal Company opened a number of new mines, and the mines along the Pennsylvania Railroad increased their output about 30 per cent. Iron and steel works were crowded with orders months ahead. Pig-iron production amounted, in 1900, to 7,343,257 tons, and in 1902 8,117,800 tons, equal to 45.5 per cent. of the total production of the United States. Bessemer steel production increased in the same period from 4,293,437 tons to 4,379,516 tons. The production of petroleum was 31,201,165 barrels—a slight decrease. Wells producing numbered 7722. At end of the year 582 new wells were being drilled. More new textile mills were built in Pennsylvania than in any other State. Seven cotton mills, 7 woollen mills, 16 silk mills, and 27 knitting mills were built. Freight traffic on the railroads was enormous. More than 1,929,000 cars were moved over the middle division of the Pennsylvania Railroad—a world record for freight handling. Between Pittsburg and New York traffic average was 23,764,530 tons per mile of road. Average freight earnings were $116,479 per mile. Wages of the employees were advanced 10 per cent. in December.

Conventions and Platforms.—The Republican State convention was held at Harrisburg on June 11. It was under the control of Senator Quay, who brought about the nomination of Judge Pennypacker for governor, and secured the defeat of Attorney-General Elkin, who was supported by Governor Stone and the "ripper" politicians of Pittsburg and Allegheny. The hope of the Democrats that the bitter-

ness of the fight between Quay and his former henchman, Elkin, would lead to an open rupture in the Republican party was not realized. The platform endorsed the President, recommended his re-election, favored reciprocity with Cuba, and suggested reforms in the State suffrage plan. The administration policy in the Philippines was indorsed. Reference was made to the policy of protection in the following manner: "We demand that this policy in so far as it protects and tends to develop the industries and interests of the American people shall be firmly adhered to." Concerning trusts and combinations the platform expressed approval of the President's efforts to "check the growth of unlawful combinations intended to raise the price of commodities at the expense of the consumer," and recommended that such action be taken in similar cases. The platform also contained the following: "We place ourselves on record as favoring the passage of wise immigration laws to the end that anarchy may be forever driven from this country, and that the American workingman shall be protected against unfair labor from abroad."

The Democratic State Convention was held at Erie on June 25. The nominee for governor, ex-Governor Pattison, received the honor for the third time in twenty years. National politics were purposely omitted from the platform, State issues being considered paramount. The Republican State administration was unqualifiedly condemned. Promises were extended to the effect that in the event of Democratic success, there would be a clean sweeping away of legislative corruption. It was also promised that, if the party came into power, there would certainly be equal and just laws, pure and economical administration, ballot reform brought about by a uniform primary election law, personal registration in all cities, a secret ballot, and the appointment of overseers, ballot boxes being made available for public inspection on demand. Regarding the coal strike, the platform declared that: "We deplore the existence of the labor trouble now affecting important industries and a large portion of the people of our State, and express the earnest hope that, through concession, moderation, and fair dealing, an early adjustment may be reached."

The Union State Convention was held on September 3. There was a lively discussion regarding the merits and demerits of the Republican and Democratic candidates for governor. Two tickets were nominated, but both were declared invalid by a legal decision. The gubernatorial candidate of the Socialist-Labor party was William Adams; of the Prohibitionists, S. C. Swallow.

Elections.—At the regular biennial State election, held November 4, 1902, the officers voted for were governor, lieutenant-governor, and secretary of the commonwealth, the Republicans, of course, securing them all. The vote for governor was Pennypacker (Rep.), 592,867; Pattison (Dem.), 436,457, giving Pennypacker a plurality of 156,410. The campaign was essentially an anti-Quay contest, and the success of his candidate, Pennypacker, meant an endorsement of Quay's control. The Democrats attempted to win over the more liberal Republicans by assuming an attitude in strong opposition to the "ripper" legislation, passed by the previous legislature, as well as the corrupt manipulation of municipal government, and giving away of valuable franchises and the administration of public offices for private profit. The truth of the assertion that Quay exercises as complete control over the Democratic party as over his own Republican cohorts was amply proven by the results of the contest. The very name of reform has become odious in Pennsylvania, because so many times reformers themselves have proven to be merely disgruntled satellites of Quay, who aimed to improve not the public service, but their own condition. Though Mr. Pattison has twice served with honor and distinction as governor of the State, his deserved popularity was not sufficient to carry the election in the face of such tremendous odds. The State legislature for 1903 will consist of 40 Republicans and 10 Democrats in the senate, and 159 Republicans and 45 Democrats in the house. The people of Pittsburg resented the interference in local affairs by the "ripper" legislation of 1901, and defeated the regular Republican organization under the leadership of Senator Flinn, by about 8000 votes. The recorder, J. O. Brown, will hold over by appointment, however, until April 1, 1903.

State Officers.—For 1902: Governor, William A. Stone; lieutenant-governor, J. P. S. Gobin; secretary of the commonwealth, William W. Griest; treasurer, Frank G. Harris; auditor, E. B. Hardenbergh; attorney-general, John P. Elkin; superintendent of public instruction, N. C. Schaeffer; insurance commissioner, Israel W. Durham; secretary of agriculture, John Hamilton; secretary of internal affairs, James W. Latta—all Republicans except Schaeffer. For 1903: Governor, Samuel W. Pennypacker, elected for four years, term ending January, 1907; lieutenant-governor, William M. Brown; secretary of the commonwealth, William W. Griest; treasurer, Frank G. Harris, term two years, ending January, 1904; auditor, E. B. Hardenbergh, term three years, ending May, 1904; attorney-general, John P. Elkin, until January 20, 1903; superintendent of public instruction, N. C. Schaeffer, until January 20, 1903; insurance commissioner, Israel W. Durham, until January 20, 1903; secretary

of agriculture, John Hamilton, until January 20, 1903; secretary of internal affairs, Isaac B. Brown, until May, 1907—all Republicans except Schaeffer.

Supreme Court: Chief justice, J. Brewster McCollum; associate justices, James T. Mitchell, D. Newlin Fell, John Dean, J. Hay Brown, William P. Potter, and S. Leslie Mestrezat—all Republicans except McCollum and Mestrezat, Democrats.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

PENNSYLVANIA, UNIVERSITY OF (founded as a college in 1755), had an enrollment for 1901-02 of 2573, the same number as that of the previous year. Of this number the college enrollment was 1019, which is a larger proportion than with most of our larger universities. The department of law enrolled 386; of philosophy, 179; of medicine, 542; of dentistry, 305; of veterinary medicine, 78. Pennsylvania has taken a prominent part in raising the standards of medical education, and during the past year the requirements of admission to the medical school have been raised, with a consequent increase of tuition charges and decrease of attendance. More than 50 per cent. of medical students are now college graduates. The university authorities are now requesting that the State raise the standards of admission to the medical profession, and that it also set standards of admission to the various schools of medicine as in the case of law. In the previous year the university adopted the policy of allowing the last year of undergraduate work to be elected in the professional schools, with the result that in September, 1901, nineteen students had thus entered the medical school. During 1902 the policy of allowing a three-year A.B. course was definitely adopted, though at the opening of the fall term 90 per cent. elected the full four-year course. At the same time an effort is being made to increase the length of the college year by elimination of holidays and prolongation of the term. During the scholastic year the university had received in gifts $936,851, the largest amount ever received in a single year. Half of this was in real estate bequeathed by Joseph M. Bennett, a portion of it for the Wharton School of Finance from its founder, who has also donated land and given pledges for the erection of a new building. New medical laboratories have been added and new dormitories are being planned. The total teaching staff was increased by seven during the year and now numbers 272. Prof. Martin T. Brumbaugh, of the department of education, returned from his work as the first commissioner of education for the island of Porto Rico, and his place was taken by Prof. Samuel McCune Lindsay of the chair of sociology. The student registration for the new scholastic year was 2549 in November, 1902.

PENSIONS. The report of the commissioner of pensions for the fiscal year ending June 30, 1902, shows a total enrollment of 999,446 pensioners, an increase over the preceding year of 1711. There were added to the rolls during the year 43,952 pensioners, and there were dropped 42,241. The annual value of the pension roll on June 30, 1902, exclusive of accrued first payments and administrative expenses, was $132,152,800, as against $131,568,216 the year previous. The total amount paid for pensions, including accrued first payments, was $137,504,267.99 in 1902 and $138,531,483.84 in 1901. Administrative expenses were $3,831,378.96 in 1902 and $3,868,795.44 in 1901. There were pending on June 30, 1902, 339,436 claims of all classes, as against 403,569 in 1901. Of these claims, 34,433 were on account of the war with Spain, 63,227 were original Civil War claims, and 182,367 were for increase of Civil War pensions. Special pension grants were passed by Congress, with an annual value in 1901 of $120,192 and in 1902 of $182,825. The present average value of each pension is $132.23 annually. The States having the greatest number of pensioners are: Ohio, 104,060, to whom $15,104,092.54 was paid in 1902; Pennsylvania, 103,697, drawing $13,322,286.95; New York, 88,269, drawing $11,680,011.79; Illinois, 72,026, drawing $9,746,062.12; and Missouri, 52,813, drawing $7,081,492.02. On June 30, 1902, there were on the pension rolls four daughters of soldiers of the Revolutionary War, and also four widows pensioned by special act. There was at the same time one surviving soldier of the War of 1812, Hiram Cronk, of Oneida County, N. Y., 102 years of age. The following amounts have been paid to soldiers, their widows, minor children, and dependent relatives on account of all wars in which the United States has been engaged: Revolutionary War, $70,000,000 (estimated); War of 1812 (for service only), $45,025,297.09; Indian wars, 1832-42 (service only), $5,814,206.53; war with Mexico (service only), $31,861,337.57; the Civil War, $2,744,878,276.16; war with Spain, $3,275,184.10; or a total of $2,900,854,301.45. From the figures given for the Civil War should be deducted $16,000,000, estimated to have been paid for disabilities, incurred in the Indian and Mexican wars and the War of 1812, thus leaving as a total paid on account of the Civil War, exclusive of expenses for administration and soldiers' homes, $2,728,878,276.16. The following table shows the amounts paid for army and navy pensions and for administrative expenses for the fiscal years 1900, 1901, and 1902, and shows also the total disburse-

ment for pensions since 1790. It will be noted that the present yearly payments are greater by over $40,000,000 than the aggregate pensions paid between 1790 and 1865.

	Army Pensions.	Navy Pensions.	Administrative Expenses.	Total.
Fiscal year 1900	$134,700,597.24	$3,761,533.41	$3,841,706.74	$142,303,837.39
Fiscal year 1901	134,743,790.81	3,787,693.03	3,868,795.44	142,400,279.28
Fiscal year 1902	133,655,245.75	3,849,022.24	3,831,378.96	141,335,646.95
From July 1, 1790, to June 30, 1865	.....	.....	.....	96,445,444.23
From July 1, 1865, to June 30, 1902	2,741,659,504.38	62,749,352.84	91,654,717.92	2,896,063,575.14
From July 1, 1790, to June 30, 1902	.....	.....	.....	2,992,509,019.37

Pension Administration.—The continued criticism of the administration of the pension bureau, led, early in the year, directly or indirectly, to the resignation of Henry Clay Evans, appointed commissioner by President McKinley April 1, 1897, and to the appointment in his stead, on May 10, 1902, of Eugene F. Ware, of Kansas. The methods of Mr. Evans, had, it was understood, met the approval of President McKinley during his lifetime, and that President Roosevelt also approved them appeared evident from his immediate appointment of Mr. Evans, upon his resignation, to the important office of consul-general at London. For this reason the press generally considered that the executive had yielded, or permitted Mr. Evans to yield, to political pressure, and without any advantage accruing to the public. The criticisms that had been brought against Mr. Evans, during his incumbency of the office, by pensioners, would-be pensioners, and by the Grand Army of the Republic, were in effect that he was over suspicious, made unwarranted accusations of fraud, and interpreted the pension laws narrowly and gingerly instead of sympathetically and liberally.

PENSIONS FOR WORKINGMEN. The German imperial government compels every wage-earner receiving not more than $500 per annum, to pay a certain part of his wages over to the proper government officials to be administered as a benefit fund. The employers are required to make similar payments for each one of their employees. This law affects about 12,000,000 persons. In return for the contribution workers are guaranteed (1) a pension for disability; (2) an old-age pension to begin at seventy; (3) medical attendance; (4) in certain cases the repayment of the contributions paid in. No one can draw the old-age pension unless he is seventy years old and has paid contributions for 1200 weeks. It consists of a payment of $12.50 per annum from the state besides the sum which is the result of the worker's contributions. The latter sum depends upon his wages. Workmen are divided into five classes as follows:

Class.	Annual Wages.	Yearly Sum Drawn From Contributed Fund.	Total Annual Pension.
I	$87.50	$15.00	$27.50
II	$87.50 to $137.50	22.50	35.00
III	$137.50 to $212.50	30.00	42.50
IV	$212.50 to $287.50	37.50	50.00
V	Above $287.50	45.00	57.50

The pension for incapacity to go on working is granted only at the end of twenty-seven weeks of sickness and then only when a speedy recovery seems unlikely. The worker must have paid his contribution for 200 weeks if it is compulsory, and for 500 weeks if it is optional. The pension is withdrawn if the worker's disability arises from any crime or misdemeanor or voluntary mutilation. The disability pension also has two parts, the one fixed, and the other varying as in the case of old-age pensions. The minimum is $36.25 per annum; the maximum, $163.75. Pensions are paid at post-offices on orders issued by the insurance officers appointed to watch over the health of the workers and to impose medical treatment upon them when they deem it necessary, whether to effect a cure or to prevent disease. The officials are trying to eradicate tuberculosis, and to have made some progress, it is thought. The system is worked by means of cards upon which the worker or his employer places special stamps purchased at the post-office. When a card has reached a certain face value it is turned over by the police to the insurance officers to be placed to the credit of the worker, whose name it bears. The measure is unpopular, and could the workmen express their will, they would amend it so as to do away with the compulsory contributions from the employee, and compel the State and the employer to bear all the burden. The grand duchy of Luxemburg enacted a similar law in 1901, and in France an attempt was made in 1902 to put through a pension

law but without success. Statistics show that in spite of official watchfulness the law tends to increase sickness and disability "for revenue only."

The Metropolitan Street Railway Company of New York inaugurated a system of pensions taking effect July 1, 1902, "to preserve the future welfare of aged and infirm employees, and to recognize efficient and loyal service." The system affects all employees whose maximum wages have not exceeded $1200. Seventy years is the age for compulsory retirement, and those between sixty-five and seventy who become unable to work may retire with a pension. The allowances are as follows: For thirty-five years or more of continuous service, 30 per cent. on the same basis; and for twenty-five years of continuous service, 25 per cent. The fund from which these payments are to be made is approximated by the company, and no contributions are required of the men. The company employs about 15,000 men, nearly all of whom come under the provisions of the plan. This is the first example in this country of a pension system for street railway employees, and has brought out favorable comments from all sides. In December, 1902, the Standard Oil Company board of directors voted to grant old-age pensions, beginning January 1, 1903, to the employees of the company. High-salaried officials are affected as well as unskilled laborers. The general plan is that followed out by the various railroad companies in pensioning superannuated employees. A new feature is added which allows any employee sixty-four years old having served the company twenty-five years, to retire on half pay for one year, after which the regular pension will be paid. The regular pension is one-fourth of the salary received at the time of retirement, and will be paid to all sixty-five years old who have served the company for twenty-five years. Every employee, whether president or day laborer is included. One of the high officials immediately gave notice that he wished to take advantage of the rule. This is the first case in the United States of a "trust" giving pensions to its employees. Many of the industrial corporations of Germany and France give old-age pensions, but they invariably confine them to low-salaried workers, and require the men to contribute a certain percentage of their wages toward the fund. The inclusion of high-salaried officials in the Standard Oil scheme has called out sharp criticism. As indicated, all the more important railroad companies in the United States give old-age and disability pensions. In the beginning the pension system was based on contributions from the employees. The later schemes have been somewhat more liberal in the provision for payments and in the age and service requirements. On the first of January, 1901, the Chicago and Northwestern set aside $200,000 for a pension fund. On July 1, 1901, the Illinois Central followed suit with an appropriation of $250,000. Most roads put the age limit at seventy years and the service limit at thirty or forty years, but make provision for retirement at sixty-five at the discretion of the pension board. The Delaware, Lackawanna and Western appropriated $50,000 for a pension system on March 1, 1902. Its terms are somewhat more liberal in that only twenty-five years' service is required, and some employees may be retired between the ages of sixty and sixty-five. On May 21, the Philadelphia and Reading Company followed with a similar plan. Generally the amount of the pension is one per cent. per year of service of the average monthly wage for the last ten years of service. The granting of old-age pensions is regarded by most people as a liberal and benevolent policy on the part of great corporations. Mr. W. J. Ghent, in *Our Benevolent Feudalism,* is much inclined to doubt. He says: "The chances of a railway employee reaching the age of sixty-five or seventy years are about equal to the chances of winning a large sum at policy. Discharges are frequent and arbitrary and usually there is no appeal. Aside from this the casualties are enormous. Of the 181,198 railroad workers classed as trainmen employed throughout the country in 1900, 1396 (or one in every 138) were killed, and 17,571 (or one in every 10.8) injured. The corrected figures for 1901 show about the same percentages. Of the 209,043 trainmen, 1537 (or one in 136) were killed, and 16,715 (or one in every 12.5) were injured." Accidents are few on the Metropolitan Street Railway, but discharges are so frequent that it is estimated that not more than a dozen men now employed are entitled to pensions. Statistics bear out the opinion that few employees meet the rigid requirements of age and service. Mr. Ghent says: "The pension system is not a conspicuously expensive one, for the numbers of workmen who live long enough to avail themselves of its benefits are but scant. The sums paid out by the Baltimore and Ohio Railroad Relief Department in eighteen years average $31,185.75 yearly—about the salary of a first vice-president—and the employees themselves have borne a considerable part of the expense. A total of 697 pensions has been granted during this time, but 365 of the beneficiaries have considerately died, and thus reduced the expenses." Some object that a pension, no part of which is contributed by the beneficiary, will tend to pauperize him. So long as the securing of a pension is so uncertain, and the amount going to the workman so small, there appears no reason for apprehension on that score.

PERKINS, William Oscar, an American musician, well-known in England and America as conductor, composer, and bass-singer, died in Boston, Mass., January 13, 1902. He was born in Stockbridge, Vt., May 23, 1831, and was educated at the Kimball Union Academy from which he graduated in 1854, and at Harvard University. He entered the Boston Music School in 1854 to improve his remarkable inherited musical talents, organized in 1855 the Mendelssohn Vocal Quartet which made a successful concert tour through the New England and Middle States, and after two years' labor as teacher in the high school of New Brunswick, N. J., returned to Boston and engaged actively in teaching vocal and instrumental music. He became distinguished as a choral conductor, was made director of the choir of the Boston Music Hall in 1858, and conducted at many conventions and musical festivals in the United States and Canada. After two years' study and travel in Europe he returned to Boston in 1872, where he lived until his removal to New York City in 1882. From 1886 to 1894 he resided in London, where he was constantly busied with literary and musical work. His pupils include many vocalists well known on the concert and operatic stage. He lectured on musical and political topics, and contributed widely to periodical literature. His first published work, *The Choral Harmony* (1859), was succeeded by over sixty volumes of musical writings.

PERSEUS, NEW STAR IN. See Astronomical Progress.

PERSIA, an Asiatic monarchy extending from the Caspian Sea to the Gulf of Oman. The capital is Teheran.

Area, Population, etc.—The estimated area is about 628,000 square miles and the estimated population between 9,000,000 and 9,500,000. The largest cities are Teheran with a population of 250,000, Tabriz 180,000, Ispahan 80,000. Nearly 90 per cent. of the inhabitants are Mohammedans of the Shiah sect; the rest are Sunnites, with the exception of 45,000 Armenians, 25,000 Nestorian Christians, 35,000 Jews, and less than 10,000 Parsees. Education is in a backward condition, and though there are a large number of schools where instruction is imparted in religion, literature, and a modicum of science, a reading knowledge of the Koran is the exclusive training for the great majority of the people. The administration of justice is in the hands of the imperial governors and the priesthood.

Government, Finance, etc.—The shah rules as absolute monarch in accordance with the spirit and precepts of the Koran. There is a ministry after the European model, but the real power rests in the hands of the grand-vizier. This official since 1898 has been Mirza Ali Asghar Khan, an astute and resourceful politician. The country is divided into thirty-three provinces under governors-general appointed by the shah, but it is estimated that there are nearly 2,500,000 nomads living under their own chiefs, whom, however, the central government recognizes and holds responsible for the collection of the tribal tribute. More than 80 per cent. of the revenue is derived by direct taxation, the burden falling most heavily on the lowest classes of the population. In 1898-99 the public income was about £1,500,000; in 1899-1900 the revenue was estimated at a somewhat smaller sum, owing to the depreciation of silver. The public debt consists of two Russian loans, one of 22,550,000 rubles in gold, negotiated in 1900, and payable in seventy-five years, the loan being secured by the customs duties of the entire country with the exception of the province of Farsistan and the ports on the Persian Gulf; the other of 10,000,000 rubles in gold, also for seventy-five years, was contracted in March, 1902, through the agency of the Discount and Loan Bank of Persia, an institution under Russian control. In the sharp conflict that is now in progress between Russia and Great Britain for supremacy in Persia, the field of public finance has been practically monopolized by Russia, which in return for its loans has been careful to secure adequate remuneration, as in the case of the latest loan, when the Discount Bank was granted concession for the construction and control of a railway from the Caucasian frontier through Tabriz to Kazvin, about 150 miles west of Teheran. Late in 1902 the government entered upon a scheme of financial reform with the assistance of a large number of Belgian administrators. One of their first measures was to reorganize the customs in the Persian Gulf in such a way as to interfere seriously with British trade, and it soon became apparent that the Belgian commissioners were controlled by foreign influence practically, if not openly, anti-British.

The strength of the army is placed at 105,500 men, but the regular army does not exceed 24,500. Even the latter are poorly trained and poorly equipped and have little fighting value. The only really effective Persian regiment is under the command of a Russian military officer, who is not responsible to the Persian war office.

Industry and Commerce.—The agricultural products comprise cereals, cotton, sugar, opium, and tobacco. The country possesses valuable mineral resources, including petroleum, coal, iron, copper, and lead, but any considerable development of

PERSIA,
AFGHANISTAN, BALUCHISTAN,
and Parts of
CENTRAL ASIA.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Kandahar
Peshawar
Quetta
Kelat
AFGHANISTAN
BALUCHISTAN
BRITISH BALUCHISTAN
PAMIR
PUNJAB
INDIA
SIND
Haidarabad
Karachi
Shikarpur
Jacobabad
Multan
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60° from H Greenwich
THE MATTHEWS-NORTHRUP WORKS, BUFFALO, N.Y.

mining is prevented by the lack of transportation facilities. Mining operations were commenced in the winter of 1900-01 by a Russian company in the northern part of the province of Azerbaijan, and in April, 1902, it was reported that the Persian government had granted to a British subject a concession to work the oil beds of the Kerkhah Valley, in Khuzistan, western Persia, and to lay a pipe line to tidewater. The development of petroleum in this region, it was stated, would probably expose the Russian oil companies to dangerous competition. The most important manufactures are silk and carpets. The pearl fisheries in the Persian Gulf centre about Bahrein and Lingah, and the value of the annual output is estimated as ranging from $1,000,000 to $1,500,000. The principal articles of import are textiles, hardware, petroleum, sugar, tea, coffee, and drugs. The exports consist principally of opium, pearls, fruits, gums, horses, cereals, wool, and tobacco. In 1901 the commerce of the Persian Gulf comprised imports to the value of £2,770,964 and exports £1,420,759. Of the total amount of imports, the British, including under that term merchants of Great Britain and native Indian traders, contributed more than 73 per cent. In the north the ascendancy of the Russians is just as marked, so that of the total trade of the entire country, amounting in 1901-02 to £5,584,000 for imports and about £2,400,000 for exports, Russia contributed about 55 per cent. and Great Britain 25 per cent. An agreement between the Persian and Russian governments covering the ten-year period from the accession of the present shah (May 1, 1896) gives to Russia the exclusive right to construct railroads in the country. Russia so far has not availed herself of the opportunity, but the railway concession to the Discount Bank of Persia mentioned above may be regarded as the beginning of Russian enterprise in that direction.

Political History.—During 1902, as during the few years preceding, British influence in Persia seemed to be on the wane. Indeed, from the point of view of the British, Persian history for a number of years has been for them a long record of lost opportunities. On the other hand, Russian influence is constantly advancing: Russia controls Persian finance; she controls the commerce of northern Persia, and is constantly extending southward; the only good roads in northern Persia were built and maintained by Russia, and the only regiment in the Persian army that seems to be of any real military use has been developed and is commanded by a Russian general who is not even under the command of the Persian war office. Little by little Russia is approaching India, and when she reaches the waters of the Arabian Sea, as indeed it seems she must, if the policy of Great Britain in the Middle East is not soon strengthened, another Port Arthur or Dalny will rise up as a menace to British commerce and British power, and perhaps to the peace of the world. More than a century and a half ago the author of the apocryphal testament of Peter the Great wrote: "Hasten the decadence of Persia; penetrate to the Persian Gulf; re-establish the ancient commerce of the Levant, and advance to the Indies, which are the treasure house of the world." This plan seems ever since to have existed in the minds of Russian statesmen, and it is now that its consummation begins to seem possible. On the other hand, the policy of Great Britain, the policy of peace, seems to have been unwise. For years the British have sought to strengthen and centralize the Persian government, although the existing dynasty is essentially foreign and is hated by many of the tribes, especially in the south and west. In seeking to strengthen and guarantee the independence of the central government, Great Britain has alienated these tribes, who might now stand against Russian invasion had the British in some degree assisted them in obtaining a certain amount of self-government. The central government which Great Britain has helped to strengthen is now apparently being bought over bodily by the Russians, and so Great Britain's good offices are turning against her. Of late, however, public men in England have come to realize the danger that threatens British interests in Persia. So long as Russian ambition was directed towards gaining control of the central government, the peril to Great Britain was deemed distant and problematic, but the advance of Russia into southern Persia, the peculiar sphere of Great Britain, and the endeavor of the former nation to obtain an outlet on the Persian Gulf, brought the question nearer home. The establishment in 1901 of a line of steamships between Odessa and the gulf, with a government subsidy, could not but prepare the way for the demand by Russia of a harbor on that coast. In regard to this question of the Persian Gulf, Sir Edward Grey, the well-known authority on foreign affairs, and Lord Cranborne, the British under-secretary of state for foreign affairs, have pronounced that Great Britain's policy should be that of maintaining the *status quo*. The former said "we ought to consolidate our influence by the extension of our trade interests, and these, after all, become a great vested right;" while Lord Cranborne declared that British interests in Persia are "of the highest political order—vast commercial interests which it is our wish and our duty to maintain." Neither believed that such a policy would lead to unfriendly relations with Russia, but Lord Cranborne said that such relations were "not to be

sought at the cost of any treaty rights we possess;" he added in regard to the policy for the integrity of Persia, upon which Great Britain and Russia mutually agreed in 1888, "there are limits to that policy . . . we are anxious for the integrity of Persia, but we are anxious far more for the balance of power." Unofficial but weighty opinion pointed out in 1902 that Persia is being rapidly reduced to the position of a Russian vassal state, and that soon probably the St. Petersburg government will control the foreign relations of the shah. While it is unwise, therefore, and indeed hopeless for Great Britain to attempt to wrest from Russia her commercial and political influence in northern Persia, she nevertheless ought strongly to protest against the concession to Russia of a port on the Persian Gulf. Such a concession would mean the necessity of making a similar one to Germany as an outlet for her Bagdad railway, and with these two powers on the coast the British defence of India would have to be greatly strengthened. The Russian view of the matter is expressed by the *Novoe Vremya,* which declared that "southern Persia and the shores of the Persian Gulf are of vital importance to Russia, on account of her aspiration to obtain an opening into the Indian Ocean on the flank of the international highway, which is the Suez Canal. The acquisition of that outlet would have for Russia such vast importance that she cannot make any concession in the Persian question, and it is only on the ground of an agreement regarding that question that it would be possible to establish an understanding between herself and Great Britain."

In the summer of 1902 the Shah Muzafar-ed-din visited Europe, and carried away with him many of the latest inventions of the West, more for his own delectation than for the improvement of his country. He landed at Portsmouth, England, on August 17, reached Paris on the 25th, and on the 17th of the following month was received by the czar at Kursk, whence he departed on the 19th for Persia. His arrival at Resht and his journey thence to Teheran afforded a series of oriental holidays, marked by the usual extremes of splendor and poverty.

PERTH, George Drummond, fourteenth Earl of. See Drummond, George.

PERU, a republic on the Pacific coast of South America between Ecuador and Chile. The capital is Lima.

Area, Population, etc.—The area has been estimated at about 695,000 square miles, but there are unsettled boundary disputes with Bolivia, Brazil, and Ecuador, and this figure is probably too large. The population has been estimated at about 4,700,000. Immigration, especially to the lands along the central route from Lima to Iquitos, is encouraged by the government. The Roman Catholic is the only religion having a legal status.

Government.—The executive authority is vested in a president, elected by popular vote, and assisted by a cabinet of six members who hold office at his pleasure. The president in 1902, for the four-year term beginning September 8, 1899, was Señor Eduardo López de Romaña. The legislative power devolves upon a congress of two houses, the senate and the house of representatives. The regular army consists of 375 officers and men; the navy, aside from the *Lima,* a cruiser of 1700 tons, is inconsiderable.

Finance.—The monetary standard is gold, and the unit of value the sol, worth one-tenth of a British sovereign, or 48.665 cents. Revenue is derived chiefly from customs and direct and indirect taxation. In 1900 the revenue was 12,989,828 soles. According to President Romaña's message to the congress (July 28, 1902), the revenue and expenditure in 1901 amounted to 14,988,181 soles and 13,450,420 soles respectively. Estimated revenue and expenditure for 1902 were 15,396,680 soles and 15,767,540 soles respectively; for 1903, 15,396,682 and 15,797,470 soles respectively. In 1890 the government was released from its foreign debt in consideration of extensive concessions to the bondholders, who constitute the Peruvian corporation. The internal debt amounts to about 46,000,000 soles.

Industries and Commerce.—Agriculture and mining are the principal industries. The leading products include sugar, wools, cotton, coffee, silver, and copper. It is estimated that 40 per cent. of the capital of the country is invested in cane sugar plantations; so that the general prosperity of the country varies to a great extent with that of the sugar producer. In 1902, in consequence of the decline in the price of sugar, business conditions in the country were unfavorable as compared with those of the previous year, and in June a commission was appointed to devise measures of relief. Also from a decline in prices the copper industry suffered in 1902, but it was expected that a certain degree of prosperity would be restored by the efforts and ability of Americans, who have established some of the largest plants in Peru.

The general commerce, exclusive of the trade of Iquitos, the eastern river port, has been reported in soles as follows.

	1899	1900	1901
Imports	18,734,949	23,171,506	27,582,239
Exports	30,725,911	44,979,996	42,983,789

The leading imports are cotton and woolen textiles, iron and steel goods, and foodstuffs. Minerals and sugar are the most important exports. The decrease in exports in 1901 was principally in sugar, and to a less extent in borax, coffee, cottonseed, and gold. The mineral export in 1901 was valued at 17,508,485 soles; sugar, 10,300,000; cotton, 3,685,411; wool, 2,780,000; hides and skins, 1,770,000. Nearly half of the foreign trade is with Great Britain; next in order are the United States, Germany, and France.

Tacna and Arica seem destined to remain Chilian territory. In his message of July 28, 1902, President Romaña stated that Chile's disapproval of the Billingshurst-La Torre protocol had not permitted further negotiations; all of Peru's suggestions for settlement of the question, including arbitration, had been rejected by Chile.

PETROGRAPHY. See GEOLOGY (paragraph Petrography).

PETROLEUM. The output of petroleum in 1901 was the largest ever recorded, amounting to 69,389,194 barrels, valued at $66,417,335, an increase of 5,768,665 barrels or about 9 per cent. over the total for 1900. This increase was due almost entirely to the remarkable development of the Texas and California fields, as the Appalachian States—New York, Ohio, Pennsylvania, and West Virginia—which produce about 80 per cent. of the total, showed a slight falling off, and there was only a small gain in the Lima field. The output was distributed among the principal States, as follows (in barrels): Ohio, 21,648,083; West Virginia, 14,177,126; Pennsylvania, 12,625,378; Indiana, 5,757,086; New York, 1,206,618; California, 8,786,330; and Texas, 4,393,658. The number of new wells drilled in 1901 was 14,250. In the Appalachian field the most important development of the year was the finding of a series of large pools in Monroe and Washington counties, Ohio. The discovery of oil in the Beaumont region of Texas early in 1901, which created a profound sensation in the petroleum trade, has been followed by rapid and substantial development. By the close of the year 138 wells were drilled on Spindle Top, and of this number 55 were active producers, 77 were closed down for want of a market, and the remaining 6 were dry. Some of the wells yielded from 10,000 to 70,000 barrels a day, while their persistent flow showed a reservoir of unusual capacity. The output was limited by the lack of storage and shipping facilities, yet it reached a total of about 5,000,000 barrels—a remarkable record. The physical properties of the Beaumont petroleum are as follows: Specific gravity at 60° F., 0.922 or 21.97° Beaumé; flash point, 170° F.; viscosity, 188 seconds; carbonaceous residue on distillation to dryness, 4.40 per cent.; sulphur, 1.33 per cent.; calorific value, 19.388 British thermal units. Owing to its density the oil is better adapted for fuel purposes than for refining to obtain illuminating and lubricating oils; a large and constantly expanding market has been opened, however, and the future success of the industry seems assured. Among the large consumers are the railroads which have found it to be an ideal fuel for firing locomotive boilers, steamships, and steam plants generally. The location of the field within easy reach of tide-water is a great commercial advantage, affording cheap transportation to the interior of the country, through the Mississippi River, and to the Atlantic Coast States and to Europe. Three pipe-lines have been completed to the gulf, two 19 miles long to Port Arthur and one 24 miles long to Sabine Pass. Oil was found early in 1902 about 20 miles northwest of Beaumont, and other productive wells were opened in Bexar, Brazoria, Caldwell, Concho, Nacogdoches, Robertson, and Young counties. The great extent and productiveness of the oil-bearing territory as revealed by these developments will soon place Texas first on the list of producers in this country.

The California fields more than doubled their output in 1901, a result that was followed by a market depression which reduced the prices of the heavy fuel oils to very low figures. The rapid development of means of transportation, storage, and refining, however, greatly increased the consumption in 1902, and there is little doubt that the enlarging markets will absorb the future production unless it expands at an abnormal rate. The Standard Oil Company completed a pipe-line from the Kern field to San Francisco Bay, where it has erected a large refinery. In San Francisco the oil is now largely used in power plants replacing coal which is imported from British Columbia; it is also used by smelting plants, steamships, and railroads. It is estimated that the railroads alone consumed about 7,000,000 barrels of California petroleum during 1902.

PHILIPPINES, a group of islands lying east of Indo-China, with an area of approximately 143,000 square miles and a population of perhaps 8,000,000. Sovereignty of the Philippines was acquired from Spain by the United States in virtue

of the Treaty of Paris ratified on April 13, 1899. The civil government of the islands has been built up in accordance with (1) the instructions of the President, given under his military authority, on April 7, 1900, to the Philippine commission appointed by him; (2) the Congressional act of March 2, 1901, expressly vesting in the President, for the time being, plenary civil and judicial powers in the Philippines; (3) the Congressional act of July 1, 1902, ratifying and continuing the *de facto* government and its enactments, and providing an organic Philippine law.

Revenue and Expenditures.—The following table shows the revenue and expenditure in the Philippines (except military expenditures) from the date of the American occupation, August 20, 1898, to June 30, 1902:

	Fiscal Year Ended June 30—				Total.
	1899	1900	1901	1902*	
REVENUES.					
Customs	$3,097,864.15	$5,739,297.40	$9,105,754.67	$8,550,758.49	$26,493,674.71
Postal	42,954.87	104,282.54	122,816.83	137,811.99	407,866.23
Internal	240,754.00	561,993.18	966,400.47	225,505.09	1,994,652.74
Provincial	.....	.....	.....	1,993,270.97	1,993,270.97
†City of Manila	.....	.....	.....	1,199,590.01	1,199,590.01
Miscellaneous	127,109.81	357,954.61	491,217.00	524,482.97	1,500,764.39
Total	$3,508,682.83	$6,763,527.73	$10,686,188.97	$12,631,419.52	$33,589,819.05
EXPENDITURES.					
Customs	$28,817.90	$100,194.09	$267,446.88	$490,126.40	$886,585.27
Postal	30,410.75	89,149.51	155,347.77	175,156.57	450,064.60
Provincial	.....	.....	.....	746,586.80	746,586.80
Refunds to provinces	.....	.....	.....	324,479.35	324,479.35
City of Manila	.....	.....	.....	1,744,344.56	1,744,344.56
Other expenditures	2,316,779.97	4,569,334.15	5,650,971.79	6,564,426.64	19,101,512.55
Total	$2,376,008.62	$4,758,677.75	$6,073,766.44	$10,045,120.32	$23,253,573.13

*The revenues and expenditures are estimated for the year 1902.
†The city of Manila was incorporated by an act of the Philippine Commission of July 31, 1901.

The large surplus of revenues over expenditures has in a large measure been allotted to the payment of various contracts for public improvements, so that the actual cash surplus is comparatively small. All the figures given are in American money, and are computed from the official exchange value of American and Mexican money; that exchange value has been $2 in Mexican for $1 in United States currency up to January 1, 1902; $2.10 in Mexican for $1 in United States through March, 1902, and $2.27 Mexican for $1 in United States through June, 1902. The insular treasury lost, in 1902, owing to the shrinking value of silver, a sum of over $1,000,000.

Agriculture.—Both natural contingencies and conditions of trade and currency prevented any substantial beginning from being made in 1902 in developing the great agricultural wealth of the Philippines. The prohibition imposed by the Congressional act of July 1, 1902, against any one corporation in owning more than 2500 acres of land, not only prevented the investment of capital in such industries as tobacco and sugar culture, but also deterred investments of capital in railroad enterprises, and discouraged existing landholders from increasing their crops in the hope of better transportation facilities. Again, the fluctuating standard of value caused by the Mexican dollar crippled agriculture as well as other industries, and finally the lack of adequate and efficient labor was felt everywhere. But beyond these general trade drawbacks was the loss, principally through the rinderpest, of 90 per cent. of the carabo or water-buffalo, upon which the cultivation of rice, sugar, and hemp was largely dependent. At the same time the rice crops in China and Saigon suffered from the drought, and the price of rice in the Philippines rose from $4 to $7 Mexican per picul (137.9 lbs.). Moreover, while rice was being imported at these high prices, cholera swept over the land, causing, it was estimated, 100,000 deaths. The hard conditions, however, did not apply to the provinces where, as in Albay, hemp was the principal product, or in the northern provinces of Luzon, which depend largely upon the crops of corn and tobacco. See AGRICULTURE (paragraphs Agriculture in the Philippines and Agricultural Experiment Stations).

Forest Lands.—The forest area of the Philippines, including public and private woodlands, was estimated in 1890 at 48,112,920 acres. Far less than 1,000,000 acres are under private control. There are fourteen sawmills in the Philippine Islands using steam or water power, eight of which are in Manila and six in the provinces. The Manila mills have a total daily capacity of 3660 cubic feet. There were taken from the public lands in the Philippines during the fiscal year ending June 30, 1902, 3,637,392 cubic feet of timber; 3,808,870 cubic feet of fire-wood; 247,947 cubic feet of

charcoal; 20,685 pounds of rattan; 2,256,458 pounds of dye-woods; 312,154 pounds of tan bark; 1,082,235 pounds of gum mastic; 282,996 pounds of rubber (superior grade); 373,331 pounds of gutta percha (low grade); 9181 gallons of vegetable oils; 113,905 pounds of pitch; and 20,685 pounds of cinnamon. The total revenue derived from these products was $348,073.08 (Mexican); government charges on timber were a little more than 6 cents (Mexican) per cubic foot, which was between 5 and 10 per cent. of the market price of the timber at Manila. See FORESTRY (paragraph Forestry in the Philippines).

Commerce.—The commerce of the Philippine Islands with the United States expanded rapidly during 1902, in spite of many adverse conditions, especially the unstable currency. The total imports (exclusive of army supplies) from the United States were $4,728,555, as against $4,158,699 in 1901; the total exports to the United States were $10,211,303, as against only $3,737,071 in 1901. The following table gives the principal imports of domestic merchandise from the United States to the Philippines for 1901 and 1902:

IMPORTS INTO THE PHILIPPINES FROM THE UNITED STATES.

ARTICLES.	Value.	
	1901	1902
Breadstuffs	$276,031	$375,729
Cotton, manufactures of	113,753	377,586
Iron and steel, manufactures of	745,741	804,289
Oils, mineral, refined	119,571	307,994
Paper, and manufactures of	185,141	218,789
Spirits, wines and malt liquors	874,255	641,784
Wood, and manufactures of	260,941	269,202
Total	$2,575,433	$2,994,923
All others	1,583,266	1,733,632
Grand total	$4,158,699	$4,728,555

Unmanufactured Manila hemp fiber constitutes the only important export to the United States, amounting in 1902 to 50,361 tons, valued at $10,003,954, as against only 23,948 tons, valued at $3,478,580, in 1901—an increase of nearly 200 per cent. in value of the trade. This item made up more than 99 per cent. of the exports to the United States in 1902. While the trade in articles free of duty expanded greatly during 1902, the trade in dutiable merchandise fell off from $233,293 in 1901 to only $170,167. Sugar was the most important single item among commodities subject to duty, amounting to 5,440,000 pounds, valued at $73,277, in 1902, as against 11,424,000 pounds, valued at $188,159, in 1901, a decrease of over 61 per cent. Of the total commerce between the United States and the Philippines, American vessels carried imports into the islands amounting to only $741,957 and exports amounting to only $135,190, as against $3,849,408 and $10,021,651, respectively, carried in foreign ships. Judging from the peculiarities in the growth in the exports of free commodities and the decline in exports of dutiable commodities, it is evident that what the islands need more than anything else is a greater measure of free trade. With this must be coupled the establishment of a stable and usable currency if commercial conditions in the Philippines are to be made at all tolerable.

No figures were available relating to the trade of the Philippines with foreign countries during 1902. The following table gives the official figures of the foreign trade, as published by the War Department, for 1900 and 1901:

COUNTRIES.	1900		1901	
	Imports.	Exports.	Imports.	Exports.
France	$978,095	$2,533,607	$1,907,074	$1,323,513
Germany	1,631,816	126,729	2,205,695	81,432
Spain	1,989,235	1,566,972	1,934,251	1,263,150
United Kingdom	5,576,931	8,105,220	5,692,579	11,126,226
Chinese Empire	3,127,569	238,827	3,884,966	118,003
British India	1,745,124	1,009,388	3,384,065	728,163
French India	760,084	396	2,359,039	1,622
Kongkong	4,610,913	3,870,994	1,165,738	2,924,974
Japan	441,319	794,453	1,061,131	1,584,218
Total	$20,831,086	$18,246,586	$23,594,538	$19,151,301
All others	$1,879,498	1,778,646	3,033,072	800,203
Grand total	$22,710,581	$20,025,232	$26,627,610	$19,951,504

Banks.—According to the report of the treasurer of the Philippine archipelago for the year ending June 30, 1902, there were eleven banks, including branches,

operating in the islands, with a total capital of $1,400,086. The deposits amounted to $18,122,866, and the total resources to $29,914,489. The cash holdings were as follows: United States gold, $407,825; other gold coin, including bullion, $22,886; United States silver dollars, $88,680; United States fractional silver and other money not classified, $73,027; United States notes, $1,390,112; Mexican pesos, $4,364,066; Spanish-Filipino pesos and half pesos, $1,531,106; and other Mexican and Spanish-Filipino currency, $84,251. The larger part of the banking of the islands is conducted by the Hongkong and Shanghai Banking Corporation, the chartered Bank of India, Australia, and China, and the Spanish-Filipino Bank. Since 1901 the following banking corporations have engaged in business in the islands: The North American and Philippine Loan and Trust Company, the American Bank of Manila, the International Banking Corporation, and the Guarantee Trust Company of New York.

Public Works and Improvements.—The bureau of coast guard and transportation contracted for ten vessels, five of which were completed during 1902, for use in the service of the bureau. It is estimated that $200,000 will be needed to complete the construction of lighthouses. The commission has not yet passed a general railroad law or a general corporation law, but a law was passed in 1902 for granting franchises for electric street railways in the city of Manila, inviting competitive bids upon three points: The duration of the franchises, the fare to be charged, and the percentage of gross receipts to be paid for the franchises. Bids were advertised for in Manila, New York, Washington, and Chicago.

Report of the Commission.—On November 1, 1902, the Philippine commission submitted its report for the year ending October 1, 1902. It urged the following recommendations: "(1) The establishment of a gold standard in these islands, upon the plan recommended by the commission in its report of last year, and of banking corporations empowered to issue circulating bank notes under proper safeguards; (2) a reduction of at least 75 per cent. of the Dingley rates of duties upon goods imported from the United States to the Philippine Islands; (3) an amendment to the Philippine act, so that the limit upon lands which may be sold to or held by individuals or corporations from the public domain shall be increased from 1024 hectares (2530.304 acres) to 25,000 acres, or in the alternative, so that the government shall be given the power to lease for sixty years upon competitive bidding tracts from the public land aggregating in any individual or corporate lessee not more than 30,000 acres; (4) that the Philippine act be amended by repealing the limitation which forbids an individual or corporation from holding an interest in more than one mining claim; (5) that all bonds issued by the insular government under the authority of the Philippine act shall be free from State, county, and municipal taxation in the United States; (6) that an amendment be made to the Chinese exclusion act, giving power to the government by law to admit a fixed and limited number of Chinamen into the Philippine Islands, who are certified to be skilled laborers, on the bond of the employer that for every Chinese skilled laborer employed, he will employ a Filipino apprentice, and that he will return the Chinese skilled laborer thus introduced within five years after his admission to the country, and that he shall pay a head tax not exceeding $50 for each Chinaman so admitted, to the insular government, to meet the expenses incident to the enforcement of these restrictions."

Education.—The difficulties confronting the Philippine government in the matter of public education are threefold, namely: the differences in the races, the lack of transportation, and the inhibiting influence of religious orders and affiliations. In view of the great difficulties in the way, great progress has been made since the establishment of civil government on July 1, 1901. Seventeen school divisions have been established, comprising an area of 114,792 square miles. The total number of public schools in the archipelago on September 30, 1902, was 1835, employing 2623 native teachers and 783 American teachers. The number of children enrolled in day schools was more than 200,000, and the enrolment in night schools exceeded 25,000. The expenditures from July 1, 1901, to February 1, 1902, were: Salaries and wages, $450.889; furniture, books, etc., $92,363; transportation, $43,853; support of provincial schools, $1857; miscellaneous contingent expenses, $26,370, making a total of $615,333. The report of the normal school in Manila on January 1, 1902, showed a total enrolment of about 350, with an average daily attendance of about 202. In the nautical school at Manila the total enrolment was 83, and the average daily attendance was 83. The trade school at Manila showed a total enrolment of 148. An agricultural school was established at Negros. The teachers employed in these four special schools number four, thirteen, five, and one, respectively. Industrial education is the great want among the Filipinos, and it is the aim of the government to supply the necessary training to make the people self-supporting and intelligent workmen. Grammar and high schools are being established as rapidly as the need demands, and a school of fine arts, music and painting, a technical school, and a university are definitely planned.

Monastic Orders.—The friars of various orders hold much of the agricultural and other lands of the islands. In 1902 the valuation of their real estate in Manila alone was 5,901,978 Mexican dollars. In view of the intense hostility of the people toward the friars, and the necessity of throwing open their lands for settlement and cultivation, the Philippine commission decided that the only feasible settlement would be to purchase their lands and persuade them to leave the islands. But this solution must depend entirely upon the voluntary cooperation of the friars, as no warrant for compelling them to dispose of their lands or to emigrate can be found in Anglo-Saxon jurisprudence, quite apart from the protection afforded by the Treaty of Paris. Upon the recommendation of the commission, a clause was inserted in the Philippine civil government bill (see paragraph Temporary Government), and became law on July 1, 1902, authorizing the Philippine government to issue bonds for the purchase of lands held in such large tracts or in such a manner, "as in the opinion of the commission injuriously to affect the peace and welfare of the people of the Philippine Islands." Governor William H. Taft was instructed by the secretary of war on May 9, to go to Rome, and enter into negotiations with the Holy See for the sale of the friars' lands and the withdrawal of the friars from the islands. The proposals were: (1) The Philippine government would buy all the agricultural lands to which the orders held title either by themselves, by contract, or by a majority of company stock; the price to be determined by an arbitration tribunal of five, of whom the President should appoint two, the Holy See two, and a disinterested person one; (2) the Philippine government would make over to the representatives of the Holy See the land and inclosures, formerly held by Spain, occupied by Catholic churches and convents; (3) the Philippine government and the Holy See would endeavor to reach an agreement as to which of the various established educational and charitable trusts should be administered by each of them; and failing to agree, the subject would be referred to the arbitration tribunal appointed; (4) subject to the favorable action of Congress, the United States government would pay such compensation as the arbitration tribunal determined was due for churches and convents occupied and injured by American troops during the insurrection. On its side the Holy See should undertake that all friars except those outside of Manila, should withdraw from the islands within two years, and only secular priests or non-Spanish members of religious orders, whose presence would not disturb peace or order, should hereafter be appointed as parish priests. To these proposals, the Holy See, through Cardinal Rampolla, agreed in substance, except as to the immediate withdrawal of the friars. In that matter he stated that their violent recall "would be contrary to the positive rights guaranteed by the Treaty of Paris," and would place him "in conflict with Spain, who would have every reason to protest." The government then arranged to treat with the new apostolic delegate to the Philippines for a settlement, and the plan of buying the friars' land piecemeal instead of *en bloc* was adopted. The Holy See assented to this and promised to do everything possible "to ameliorate the religious situation of the archipelago and to cooperate in the pacification of the people under the American sovereignty." Negotiations between Governor Taft and the apostolic delegate, Archbishop Guidi, were begun at Manila November 28, but at the end of 1902 no conclusion had been reached.

Temporary Government.—A congressional measure of great importance was an act of July 1, 1902, for the temporary government of the Philippines. A bill for this purpose passed the House in April. It provided for a gold monetary standard and for a popularly elected legislative assembly to be *immediately* called into existence with the Philippine Commission as the upper chamber. After seven weeks of debate the Senate by a vote of 48 to 30 passed the bill so amended as to provide for a legislative assembly only after the taking of a census and after a condition of general peace and good order should have prevailed for two years. Furthermore, the bill provided for the silver standard in the islands. After consideration of the bill in conference a compromise was reached, omitting all reference to a monetary standard. By the act as finally passed the existing government of the Philippines was continued, as instituted under the executive orders of the President. These orders comprised that of April 7, 1900, creating the Philippine Commission and defining its powers; that of June 21, 1901, creating the offices of governor and vice-governor; and an act of the Philippine Commission of September 6, 1901, organizing the departments of the interior, of commerce and police, of finance and justice, and of public instruction. All inhabitants of the Philippines, citizens of Spain at the date of the ratification of the treaty with Spain, April 11, 1899, were declared to be citizens of the Philippine Islands, if they so elected, "and as such entitled to the protection of the United States." The Bill of Rights, the federal constitution, was virtually enacted for the Philippines, except as to the right of maintaining a militia and of trial by jury. The President was directed, when the insurrection should have changed to "general and complete peace," to order a com-

plete census of the islands, including statistics of population, race, illiteracy, dialect, and social conditions.

Legislative and Judicial Power.—It was directed that "two years after the completion and publication" of the census, if general peace still continued, the legislative power of all those parts of the islands "not inhabited by Moros or other non-Christian tribes" should be transferred from the Philippine commission to a bicameral legislature, consisting of the Philippine Commission and the Philippine Assembly. The assembly is to consist of from fifty to one hundred popularly elected delegates, apportioned among the provinces in accordance with population, but each province shall have at least one. The electors of these delegates are to possess the same qualifications as already required by the Philippine Commission in municipal elections; that is, they must have held office under the Spanish régime, or own property to a value of $250, or pay taxes of $15 or over, or speak, read, and write Spanish or English. Two resident commissioners to the United States are to be elected by the legislature, and both commissioners and delegates are to be elected biennially. The legislature is to meet annually; but if at any session the legislature refuses to vote supplies to the government, the executive may nevertheless disburse sums equal to the amount last appropriated. The Supreme Court, the courts of first instance, and the municipal courts, as established by an order of the Philippine Commission, June 11, 1901, are continued. The United States Supreme Court is given appellate jurisdiction over all judgments of the Insular Supreme Court, whenever the cause in controversy exceeds a value of $25,000, or whenever the constitution, the laws, or any right or title of the United States are involved.

Public Lands.—All property and rights acquired by the United States in the Philippines through the treaty with Spain, except such lands as may be especially reserved by the President for federal uses, are placed under the control of the Philippine government for the use and benefit of its people. The insular government is directed to classify the public agricultural lands and make general regulations, subject to the approval of the President and of Congress for their lease or sale. The government is also authorized to grant free title to public lands, not exceeding 16 hectares, to any native occupying them previous to August 13, 1898, and to issue general regulations for the sale of public lands—except timber and mineral lands—to settlers and cultivators; but the lands so disposed of must be actually occupied and improved for at least five years, and in any case holdings are limited for individuals to 16 hectares (39.536 acres); for corporations to 1024 hectares (2530.304 acres). See paragraph Monastic Orders.

Bonds for Improvements.—With the approval of the President and of Congress, the government is authorized to permit municipalities to issue, at not less than par, 5 per cent. bonds for municipal improvements. Such bonds are to be payable in five and redeemable in thirty years; they are not to exceed in amount 5 per cent. of the assessed valuation, and they are to be met, as to both principal and interest, by local taxation. Under the same conditions of approval, issue, and redemption, the city of Manila is empowered to issue bonds to the amount of $4,000,000 for the purpose of obtaining an adequate drainage system and water supply.

Franchises.—The insular government is empowered to "grant franchises, privileges, and concessions, including the authority to exercise the right of eminent domain," but only upon the following conditions: That all franchises and concessions shall be subject to amendment or revocation by Congress; that stocks and bonds shall be issued only to an amount representing actual cash received, or property at a fair valuation; and that in the case of public-service corporations, the charges made are to be officially regulated, the corporations' accounts examined, and a reasonable percentage of the companies' gross earnings paid into the insular treasury, or into the treasury of the province or municipality within which the franchise is granted and exercised. Corporations are not to be authorized to do a real-estate business, or to hold any other property than that necessary to the purposes for which they are incorporated. It shall be unlawful for any agricultural or mining corporation, or any member thereof, to be interested in any other agricultural or mining corporation. Corporations may lend money upon real estate and may buy in property when necessary to the security of their loans; but property so purchased shall be sold within five years. Corporations not organized in the Philippines but doing business therein shall be bound by all these provisions so far as they are applicable.

Coinage.—The insular government is authorized to establish a mint at Manila, and to coin there, or to have coined in the United States through the secretary of the treasury, subsidiary and minor coins. The minor coins are to be legal tender for $1 and the subsidiary coins for $10, and the unit of both is to be the "*centavo*," roughly equivalent to a half cent (American). The minor coins are to be of the denominations of one-half centavo, one centavo, and five centavos, and the subsidiary coins of the denominations of ten, twenty, and fifty centavos. The sub-

sidiary coins are to be silver nine-tenths pure, and to have a gross weight respectively of 38.58 grains, 77.16 grains, and 192.9 grains. The Filipino dollar and the subsidiary currency issued by the Spanish government may be recoined into the new subsidiary issue, and on all moneys circulating in the islands, the governor is authorized, as often as every ten days, to establish the equivalent rates of exchange with the money of the United States. The coins provided for in this act were not issued by the commission, as such coins would only increase the number of standards without giving the islands a stable and single standard. In fact, the only part of this section which was of any benefit was that permitting the commission to establish the rates between silver and gold every ten days instead of every three months as before. The act settled nothing as to the currency, and the question must undoubtedly be brought again before Congress.

Mineral Lands.—All valuable public mineral lands are declared to be open to exploration, occupation, and purchase by citizens of the United States or of the Philippine Islands, subject to the regulations imposed. But nothing in the regulations is to be construed as operating adversely to claims and holdings acquired under previously existing laws. Mining claims upon land containing valuable deposits may be made to the extent of 1,000,000 square feet (22.957 acres) each; the claims to be as nearly as possible in rectangular form. But no person or corporation shall hold in his or its own or in another name more than one mineral claim on the same vein or lode, and a claim to hold valid must be worked to the amount of $100 worth of labor in each year. Patents are to be issued for claims upon proof that $500 worth of labor has been expended thereon and upon payment to the treasury of $5 per acre. Placer claims, claims for building-stone lands, and oil lands, shall be entitled to patents, in absence of adverse claims, when they have been held and worked for ten years; but the patents are to be limited to 8 hectares (19.768 acres) to an individual, and 64 hectares (158.144 acres) to a corporation. Entries upon coal lands shall be conditioned upon paying to the government not less than $25 per hectare, if the lands are over 15 miles distant from a railroad or navigable water, and not less than $50 per hectare if they are within that distance. The entry cannot exceed 64 hectares (158.144 acres) by an individual or 128 hectares (316.288 acres) by a corporation.

Congressional Jurisdiction.—It is provided that hereafter, the governor, vice-governor, members of the Philippine Commission, heads of executive departments, and the chief justice and associate justices of the Insular Supreme Court, shall be appointed by the President with the consent of the Senate. Congress reserves the power to annul all laws passed by the government of the Philippines and the Philippine Commission is directed to make annual reports of all its receipts and expenditures to the secretary of war. The division of insular affairs, instituted by the War Department, is continued as the bureau of insular affairs, and to the bureau is committed "all matters pertaining to civil government in the island possessions of the United States subject to the jurisdiction of the War Department."

History.—The chief work of the military forces in the Philippines during 1902 was the suppression of the insurrection in the island of Samar and in Luzon. An incident of the operations was the capture of Lukban and Malvar, the sole remaining Filipino chiefs of prominence. This had the effect of putting an end to rebellious agitation in these provinces. In the spring an insurrection of Moros on the island of Mindanao broke out and was not completely suppressed until near the end of the year. After several defeats the sultan urged his followers to accept the friendship of the Americans, but a majority of them refused. Thenceforth the campaign consisted of skirmishes against the rebels. In August General Chaffee went to Mindanao to direct the campaign in person. In the meantime the sultan was captured, and in October Captain Pershing inflicted a crushing defeat upon the insurgents, killing or wounding about 100 of them and destroying forty of their forts. In connection with the military operations charges of cruelty to the natives were made against several officers of the army. The most notable of these cases was that of Gen. Jacob H. Smith commanding the troops in Samar, who ordered his troops to kill all natives over ten years of age capable of bearing arms, and to "make Samar a howling wilderness." When the news of this order reached the United States it provoked great indignation and was the subject of general condemnation. In April General Smith was tried by a court-martial sitting at Manila, and found guilty of "conduct to the prejudice of good order and military discipline." The findings of the court were approved by President Roosevelt, and General Smith was retired from active service. Another case which attracted much attention was the trial by court-martial of Major Waller upon the charge of cruelty in executing eleven natives of Samar. He was acquitted on the ground that the circumstances justified the execution of the insurgents. Several other trials upon similar charges took place, but the officers were acquitted. Upon review by the President the findings in several instances were disapproved and the officers were

duly punished. Outside the provinces mentioned peace and order prevailed. On May 23 Acting-Governor Wright cabled the War Department that no further reason existed why civil government should not be established in all the Philippine islands outside the Moro country. At the time of the dispatch no civil government existed in the provinces of Lepanto, Bontoc, Batangas, Laguna, Principe, Infanta, Mindoro, Samar, and the Paraguan and other small groups, although no insurrection existed at the time in any of these provinces. Acting upon this information the President, on July 4, issued a proclamation of amnesty declaring the Philippine insurrection at an end everywhere except in the Moro territory, and extending a full pardon and amnesty to all persons, with a few exceptions, in the archipelago who had in any way resisted the authority of the United States. The excepted classes included those who, since May 1, 1902, had committed crimes in any province in which civil government had been established, and those convicted of the crimes of murder, rape, arson, or robbery by any military or civil tribunal organized under the authority of Spain or the United States. As a result of the proclamation some 1800 Filipinos were released from imprisonment. By a separate proclamation issued through the War Department at the same time General Chaffee was relieved of his civil duties as military governor, his authority in civil matters being superseded by that of the Philippine Commission. As a further proof of the improved conditions in the islands the strength of the army in the Philippines was reduced from 31,700 men to about 23,000. Orders were also given for the return of the Eighth, Fifteenth, Twenty-fourth, and Twenty-fifth regiments of infantry and a squadron of the Tenth cavalry, after which it was expected that the number of American troops in the Philippines would not exceed 18,000 men, as against 70,000 on June 20, 1901. On June 19 the secretary of war sent to the Senate a statement of the expenditures in the Philippines from the beginning of the American occupation as follows: 1898 (two months, May and June), $3,686,850.81; 1899, $26,230,673.10; 1900, $50,869,543.96; 1901, $55,567,422.86; 1902 (ten months, July to April inclusive), $34,972,082—total, $171,326,572.73. An important act of Congress affecting the Philippines was a temporary measure to provide revenue for the government of the islands. A bill to confirm the tariff duties already levied by the Philippine Commission, but providing that imports from the Philippines should pay the same duties in the United States as imports from foreign countries, and that exports from the United States should be exempt from internal revenue taxes and subject only to the customs duties in the Philippines, and that all such duties should be expended in the islands alone passed the House December 18, 1901, by a vote of 163 to 128. It was amended by the Senate so as to reduce the tariff rates on importations from the Philippines by 25 per cent. and by deducting as well the amount of the export duty levied in the islands. After some delay the House accepted the amendments, and the bill became law March 4.

During the latter part of the year the financial condition of the islands was unfavorable chiefly on account of the fall in the price of silver. At the same time considerable distress, amounting to famine in some localities, existed throughout the islands, resulting from crop failures. The government was forced to adopt measures to relieve the suffering and improve the financial situation.

The annual report of General Chaffee on conditions in the Philippines was made public November 14. He reviewed the work of the army in suppressing recent insurrections, and declared that nothing was done in Samar which was not justified by the conditions there existing. With regard to the Moros in Mindanao, who at that time were the sole remaining insurrectionary element, he said that it would require patience, time, and tact to establish the authority of the United States over them. He recommended that the title of the Sultan of Jolo as owner of the lands of the Jolo archipelago be quieted by a money consideration, and that his presence be removed, after which the laws could be enforced through the chieftains upon their followers. On this point he said: "It will be impossible for many years to ignore chieftainships—dattos—and to deal directly with the individual Moros as is done with civilized Christian people. It will, however, be a long step ahead for the inhabitants of the Jolo archipelago when the dattos are independent of the sultan and recognize the United States as the only sovereignty to whom allegiance is due and as the only authority empowered to enact laws for the government of the inhabitants and the country; that all the inhabitants are equal before the law; that Christian people have a right to live."

Territorial Officers.—For 1902: Civil governor, William H. Taft (Ohio); civil vice-governor and secretary of commerce and police, Luke E. Wright (Tennessee); secretary of finance and justice, Henry C. Ide (Vermont); secretary of public instruction, James F. Smith (California), successor of Prof. Bernard G. Moses (California); secretary of the interior, Dean C. Worcester (Michigan); attorney-general, L. R. Wilfley (Missouri).

Supreme Court: Chief justice, Cayetano Arellano (Philippine Islands); asso-

ciate justices, J. F. Cooper (Texas), Fletcher Ladd (New Hampshire), Victorino Mapa (Philippine Islands), Florentino Torres (Philippine Islands), and Charles A. Willard (Vermont).

PHOSPHATE. See MINERAL PRODUCTION.

PHOTOTHERAPY. The ultra violet rays of Finsen have been extensively used during 1902, in many and widely diverse conditions. The most brilliant results were obtained in lupus, although epithelioma, rodent ulcer, and various chronic skin diseases, and infections were treated with some success. The actinic rays have been found to have a distinct antiseptic effect and to produce a considerable degree of anæsthesia. One observer reports the removal of a large sebaceous cyst of the scalp under actinic ray anæsthesia; an abscess opened under the same conditions and treated with blue light antisepsis; and the removal and after treatment in the same manner of a sloughing piece of skin an inch square from the palm of the hand. The only drawbacks to treatment by the Finsen method are the enormous cost of the apparatus and the length of time necessary to effect a cure. Colquhoun describes a simpler form of apparatus. The patient sits with his back to the window, and sunlight is reflected from a mirror and focussed through a biconvex lens. Between the patient and the lens is a bottle containing an aqueous solution of ammonio-sulphate of copper, which absorbs the heat rays and gives a concentrated beam of blue light. Good results were obtained in lupus by an hour's daily treatment. This apparatus is limited by being absolutely dependent on sunshine. Several other modifications of the Finsen apparatus have been devised by different investigators, but thus far none has proved sufficiently perfect to replace it. In Russia the light treatment has been most thoroughly studied during 1902. Veliaminoff relates the results of 55 experiments. Of these 38 were of lupus vulgaris, 19 of erythematous lupus, 10 of rodent ulcer, and 10 of telangiectasia. In these experiments attention was directed toward the solution of the problems as to the effect of luminiferous energy on bacteria, and on healthy and diseased animal tissue. One of the collaborators, V. N. Tomaschenski, performed about 500 ingenious experiments with 10 species of bacteria, including a number of pathogenic and spore-forming varieties (staphylococci, bacillus pyocyaneus, bacillus typhosus, etc.) and found that light acts destructively on bacteria (which is already well known) and that the bactericidal action resides almost exclusively in the shortest light waves. The amount of luminiferous energy necessary to destroy bacteria was found to be 1 to 30 kilogrammetres for each square centimetre and infected surface, according to the nature of the organism. This destructive action of the shorter waves holds good in the case of the lower plant and animal microorganisms, such as spirogyra, amœba, flagellata, infusoria, etc. It was found that light possesses a destructive action on the lower organisms and some of the cell elements, causing at the same time proliferation of fibrous connective tissue. The therapeutic effect of Finsen's light depends on this double action. In comparing the effects of the actinic light days with the Röntgen rays it is noted that the latter cannot take the place of the actinic rays, although they may prove a useful adjunct. The reaction of the X-rays is, as a rule, more severe than that caused by the ultraviolet rays, and is deeper, more painful, and often suppurative. Effects are slow in appearing, but the action is cumulative, its effects endure longer, and action goes on after treatment has ceased. See RÖNTGEN RAYS.

PHYSICS. *Radioactivity.*—On the experimental side of physics the year 1902 was most productive in results relating to the related phenomena of radioactivity and the discharge of electricity through gases. Curie, the discoverer of radium, has prepared a much purer sample of it than had before existed, and has made, by weighing the chloride and then determining the amount of chlorine present by precipitation with silver, a new determination of its atomic weight, which he gives as 225, with an error not greater than one unit. It has been shown that radiations from radium cause liquid dielectrics, such as oils, to become slightly conducting to electric currents, just as happens in the case of gases, though in liquids the effect is not so great. Tommasina describes experiments which prove that part of the radium radiations may undergo reflection from a metal surface. It had been concluded, from some experiments of Becquerel, that the shower of particles thrown off by radium, constituting the most important part of the radiations, involve so small an amount of matter that the loss of weight would be absolutely incapable of detection by any balance. On the contrary, a concentrated sample of a radium preparation sealed inside a glass tube, lost 1 mg. in weight in thirty days. The radium preparations are found to give a greenish to carmine red color to the Bunsen flame. A certain small part of the radiations from radium, uranium, and thorium is found to be very penetrating, losing only half the intensity after passing through 1.5 cm. of lead. This radiation is not deflected by a magnetic field. As it is known that radioactive matter is very widely distributed, it has been suggested that the so-called spontaneous ionization of air that takes place even in tightly closed vessels

may be due simply to such penetrating radiations. A number of new radioactive preparations have been prepared, which differ in some respects from former preparations. The nature of these is little understood, though it is probable that they are simply new manifestations of the known radioactive elements.

Researches on the radioactive matter in the atmosphere, which may be collected and concentrated on a negatively charged conductor, have been continued. Professors Elster and Geitel have shown that the air in cellars contains much more of the radioactive substance than the open atmosphere, though the dampness of the cellar is certainly not the cause of this. Air drawn up from the ground through a pipe driven a metre into the earth is strongly radioactive, so that it is probable that the effect in cellars is due to the ground air diffusing through the walls. Prof. J. J. Thomson has found that air attains radioactive properties by being bubbled through water or having water sprayed into it. Freshly fallen rain evaporated to dryness leaves the vessel radioactive. Neither the magnitude of the rain drops, time of day, time since beginning of shower, nor kind of vessel exerts any influence on the amount of radioactivity. The intensity of the activity rapidly decreases, falling to about one-quarter its value in an hour. Freshly fallen snow also shows this radioactivity. At the foot of Niagara the air contains no radioactive matter, doubtless because it is kept so thoroughly washed by the spray. Since negatively charged conductors collect radioactive matter from the atmosphere, it has been pointed out that all objects on the surface of the earth must have on their surface a certain amount of radioactive matter, for the earth is generally negatively charged with respect to the atmosphere.

Professor Rutherford and others at McGill University have made very extensive studies of thorium in reference to its radioactivity and have arrived at the following conclusions: About 54 per cent. of the activity of thorium compounds is due to a non-thorium type of matter, called ThX, possessing distinct chemical properties, which is temporarily radioactive, its activity falling to half value in about four days. The new material is produced continually by thorium, seemingly independently of its chemical or physical environment. ThX excites radioactivity in surounding bodies by means of an emanation which it in turn produces, which emanation diffuses itself much like a gas. Thorium can be temporarily freed by chemical means from both ThX and the emanation. Radioactivity is due to a change within the atoms and is probably an accompaniment of a chemical change. This being the case we have in radioactive phenomena a means of studying chemical changes which are far too small in amount to be revealed to even the most refined spectroscopic analysis.

Electronic Theory.—In theoretical physics much has been done towards developing the electronic theory, which has as its basis the idea of a small particle, a constituent of the atom, which is invariably connected with a definite electrostatic charge, and which is termed an electron. In the shower of charged particles constituting the kathode or Becquerel rays we have these electrons in their most comprehensible conditions. The electronic theory seeks to explain all electrical phenomena, so far as connected with ordinary matter, by means of a mechanics established on the actions of the electron under electrostatic and electromagnetic strains in the ether. Such a theory, to be complete, must also account for the conduction of heat, the radiation of heat and light, and all the phenomena of reflection, refraction, absorption, polarization, etc., of light. Most of the eminent theoretical physicists have contributed something to this theory during the year, among whom are Rayleigh, Kelvin, Thomson, Lodge, Heaviside, Crookes, Lorenz, Drude, Planck, Stark, Riecke, Abraham, and Kaufmann. This theory is no doubt destined to bridge over many of the gaps between electricity and mechanics. One of its most interesting developments experimentally was the measurements of Kaufmann on the deflection of the Becquerel ray electrons in the electrostatic and electro-magnetic fields, which he claims show that the apparent mass of the electron is due entirely to the magnetic field it sets up in the ether when it is in motion, which brings up afresh the not improbably correct hypothesis that all inertia is electromagnetic.

Static Converter.—Mr. Peter Cooper Hewitt has continued his investigations of the mercury vapor electric lamp, which has an efficiency as high as three candle power per watt, but which has been of little practical value on account of the peculiar color of its light; and by introducing small amounts of other substances into the mercury has succeeded in improving the color to some extent. Having turned his attention to another property of the mercury vapor tube, he has applied it with success to the rectification of alternating currents. A glass bulb contains mercury vapor under reduced pressure, a liquid mercury kathode, and an iron anode. This bulb then acts as a valve, allowing the current to pass in one direction but completely preventing its passage in the other direction. A comparatively high voltage, such as that from a spark coil, is required to start the current, but once started it can be maintained by 100 volts or under. If an alternating current is supplied to it only half the wave

can pass through, and, the current ceasing entirely during the other half, it would require restarting with a spark at every alternation. To obviate this the inventor has adopted the very ingenious device of using four anodes, one for the original starting spark, the other three for connection to the leads of a three phase circuit. Since the current from at least one of the leads is going in the right direction at any moment, the conductivity of the vapor column does not break down, and the result is a pulsating direct current in the circuit. The efficiency of this so called static transformer may be made 99 per cent., and one to rectify enough current from 200 16 candle-power lamps is only slightly larger than an ordinary 100 candle-power lamp. The drop of potential across the converter remains at about 14 volts, no matter what the current may be. An immediate application is in storage battery charging from an alternating circuit, for it is known that a pulsating current is better than a steady one in battery charging.

Electrolytic Rectifier.—From an investigation of the phenomena of the aluminium rectifiers R. E. Guthe discards the idea of a film of oxide causing the high resistance for currents from the liquid to the electrode. If such a film were the true cause the resistance would vary widely with the size of the plate; besides, the sudden breaking down on sending a current in the opposite direction would hardly be explainable. He then from several considerations shows that the resistance is actually due to a thin film of gas, probably oxygen. Only in places where the accidental concentration of energy is too great do any ions break through, which accounts for the small permanent current, as is confirmed by the fact that heat increases the current while the concentration of the solution does not affect it.

Convection Currents.—The question of convection currents, or the equivalence in magnetic effect of a succession of statically charged bodies in rapid motion to a conductor carrying a current, having been raised by experiments of Cremieu which apparently disproved the equivalence, has been much discussed on account of the important part it plays in electromagnetic theory. Experiments made by Mr. H. Pender and Professor R. W. Wood at the Johns Hopkins University have fully sustained the belief that convection currents are equivalent magnetically to conduction currents. Mr. Pender rotated a set of charged discs near a suspended magnet and obtained deflections of the magnet equal in sign and amount to those to be expected from theory. Professor Wood used the very ingenious method of propelling a stream of charged particles of solid carbon dioxide from a jet of the gas escaping from under high pressure, through a glass tube near a suspended needle. The particles become charged as they are formed in the jet and their velocity may be made several thousand feet per second, enormously greater than any to be obtained with a rotating disc. The deflections of the magnet were reversed in direction when the direction of the stream of particles was reversed, and in amount they corresponded to what was expected. Thus at his own university the results of the late Professor Rowland have been amply confirmed by two of his former pupils.

Atmospheric Electricity.—A conference on atmospheric electricity was held at Göttingen May 15 and 16, which brought together a large amount of new material for the study of the subject. Reports were read from the recently established stations of the Vienna Academy at Trieste, Vienna, Kremsmunster, and on the Sonnblick. Mechanically self-registering instruments for measuring atmospheric potential and conductivity are in use at these stations. Professors Elster and Geitel have much improved their portable apparatus for measuring atmospheric potentials and dissipation. It consists now of a special form of leaf electrometer with amber insulation, the air in the case being kept dry by a bit of metallic sodium, used in connection with a dry pile of several thousand elements.

Magnetic Alloys.—An important research on the conductivity and magnetic properties of iron alloys has been made by Prof. W. F. Barrett and Mr. W. Brown in England. As to the conductivity of the iron alloys, it was in every case much lower than that of pure iron, except in the case of a copper iron alloy, though no definite connection could be made out between the constituents and the conductivity of the alloy. In magnetic permeability the result of most importance was the discovery of an iron alloy, containing 2½ per cent. of either aluminium or silicon, which is more magnetic than even the purest Swedish charcoal iron. The alloy with aluminium is said to have a permeability of 6000. The practical value of this alloy will lie in its application to dynamo and transformer construction, for by using more magnetic cores the weight of a machine may be lessened.

Terrestrial Magnetism.—The United States Coast and Geodetic Survey has published a new and very complete set of magnetic declination tables and magnetic charts, together with a résumé of the principal facts relating to the earth's magnetism. The magnetic survey has been carried on in nineteen States and Territories, including Porto Rico and the Philippines, the magnetic elements having been determined at 258 stations, besides the continuous records obtained at the four magnetic observatories at Cheltenham, Md., Baldwin, Kan., Sitka, Alaska, and Honolulu, H. I.

Interesting features of the work at the Cheltenham and Baldwin observatories were the records obtained of the magnetic disturbances coincident with the volcanic eruption in Martinique and the Guatemalan earthquake. A number of expeditions have been sent to make magnetic and meteorological observations in Antarctic regions. (See ARCTIC EXPLORATION and ANTARCTIC EXPLORATION.) Observations at various magnetic observatories throughout the world are being taken on certain days simultaneously with these observations in extreme northern latitudes.

Velocity of X-Rays.—By far the most important work of the year in connection with the X-rays is the successful attempt, after years of effort, of M. R. Blondlot to measure the velocity of the rays, which he has proved equal to that of light. As the X-rays facilitate the passage of a spark across a gap and render it brighter, he allowed an X-ray tube to act upon the spark gap of a Hertzian resonator placed in the immediate vicinity of a Hertzian exciter, making the same current work the tube and the exciter, but in such a manner that the tube lights up an exceedingly small interval of time before the exciter sparks. This short interval of time is the time it takes the current to traverse the wires leading from the tube to the exciter. When the latter begins to act it uses up all the currents so that the X-rays immediately cease and there is no brightening of the resonator spark, but if the tube is moved several centimetres farther away the spark brightens, because now the X-rays are a little late in arriving and act at the same time as the exciter. By giving different lengths to the wires from the tube to the exciter and adjusting the distance of the tube from the resonator each time until the maximum brightening of the spark is obtained it is found that the distance of the tube from the resonator must be increased just as much as the distance from the tube to the exciter. Therefore the X-rays travel at the same rate as electricity along the wires, which is known to be approximately the velocity of light.

These results strongly support if they do not prove the theory that the X-rays are electro-magnetic pulsations of shorter wave length than light, caused by the impact of the kathode ray particles on the anode or other obstacle in the tube. Such pulses would travel with the velocity of light and have been fairly compared to the sound waves produced by the patter of rain-drops on a roof, which do not combine into a tone, but are propagated as an indiscriminate succession of sudden disturbances rapidly dying away.

Velocity of Light.—A redetermination of the velocity of light has been made at the observatory of Nice, using the toothed wheel and mirror method of Fizeau, but with a much greater distance between the wheel and mirror than had been used heretofore, it being in this case 14 miles. As a result of 1109 observations, the value obtained for the velocity of light is 299,890 kilometres per second, the probable error being estimated at less than 50 kilometres. In an article in the early part of the year, Professor Michelson gave his estimate of the best average of all previous determinations as 299,890 kilometres per second, with a probable error of 60, and also outlined a method of observation, combining the methods of Fizeau and Foucault, by which he thinks the value can be determined with an error not greater than one part in one hundred thousand.

Pressure of Light.—Professors Nichols and Hull of Dartmouth College have continued their work on the experimental proof of light radiation and have obtained with comparatively simple apparatus results which agree with the theory within 1 per cent. According to Maxwell, who predicted the detection of this pressure, its amount upon unit area of a body which receives the light is equal to the energy per unit volume in the medium transmitting the light. M. Lebedew, working on the same subject, has also obtained further results confirming the theory. In the application of the theory to the explanation of the repulsion of comet tails by the sun, it has been pointed out that when the light is intercepted by very small particles the pressure is not proportional to the area, but its dependence on the size of the particle is a more complicated matter, owing to the fact that when the light waves are longer than the particles, diffraction phenomena play an important part. This necessitates a partial revision of the theory as advanced by Arrhenius and others. Nichols and Hull have caused mixtures of fine particles of light and heavy materials, for instance pollen and emery dust, to fall through exhausted tubes and by turning on a flash of light, have been able to observe the deflection of the lighter particles by the light, the emery dust falling more steadily. See ASTRONOMICAL PROGRESS.

Spectrum Analysis.—Fabry and Perot have made a series of determinations of the absolute wave lengths of a number of spectrum lines by means of a special form of interferometer, by the use of which the lines could be directly compared in wave length to the red cadmium line which Michelson and Benoit measured accurately in terms of the standard international metre. In the case of the lines occurring in the solar spectrum the ratios of the wave lengths by this determination and from Rowland's tables are given, and lie between 1.0000286 and 1.0000381.

Matter and Ether.—Of the experiments bearing on the yet unanswered question

of the effect of motion through the ether on ordinary matter, the most important one of the year has been one done by Lord Rayleigh to discover if possible whether the rotation of the plane of polarization of light propagated along the optical axis of a quartz crystal is affected by the direction of this axis relative to that of the earth's motion in its orbit. Using a train of five very fine quartz crystals, each 5 cm. long in the direction of the optical axis, he was unable (when the system was reversed in the direction of the earth's orbital motion) to detect a variation as great as a twenty-thousandth part of the whole rotation of the plan of polarization. Thus another experiment has been added to the list of those in which no connection between the optical properties of matter and its motion through the ether can be detected.

Photometry.—Prof. C. P. Matthews, of Purdue University, has devised a photometer that gives the mean spherical candle power with the ease of a simple photometric measurement. A double ring of mirrors produces on one side of the photometer screen an illumination proportional to the mean spherical candle power of the lamp under test, while the other side of the screen is made equally bright by adjusting the distance of the standard lamp from the screen. The instrument is as well adapted for gas burners as for electric lamps.

Thermometry.—The viscosity of gases has been suggested at various times as a basis for high temperature measurements. M. A. Job has now devised a viscosity apparatus in such a way that the variations of the viscosity of a gas with the temperature, and therefore the temperature itself, may be conveniently measured. The gas generated by the passage of a known current through an electrolytic cell containing a solution of soda is forced through the 1 mm. bore, almost filled by a platinum wire lying along it, of a porcelain tube. Instead of measuring the volume of gas that escapes, a much easier measurement is made, that of the gas pressure in the electrolytic cell, by means of a sensitive manometer. The relation between the pressure and the temperature of the porcelain tube is a simple linear one, and the method yields excellent results. To calibrate the manometer the apparatus is tested by means of any known thermometer.

Temperature of the Sun.—Mr. W. E. Wilson has repeated with different apparatus his experiments on the effective temperature of the sun. A porcelain tube 2 feet in length and 1 inch in diameter, heated to any desired degree in a gas furnace, was used for the source at known temperature, for the interior of such a tube appears to very nearly fulfill the condition of a perfect radiator. The solar energy was reflected from an unsilvered glass heliostat mirror. The mean effective temperature of the sun, using Rosetti's determination of the amount of terrestrial atmospheric absorption, is 5773° Centigrade. If the absorption due to the sun's atmosphere be considered, the value is near to 6500° Centigrade.

The United States National Bureau of Standards carried on its work in temporary quarters during the year 1902, but at the end of the year was preparing to move into its new laboratories in Northwest Washington, which were being built with a view to the very highest attainments in accurate measurements.

The British National Physical Laboratory.—The opening of the National Physical Laboratory, which occurred on March 19, was an important event for physical science in England. The laboratory, which is an institution for physical research and standardization of physical measures and instruments, quite similar to the German Physikisch-technische Reichsanstalt and the United States Bureau of Standards, is located at Bushey House. At the opening, speeches before a distinguished company of scientists were made by the Prince of Wales, Lord Kelvin, Lord Rayleigh, and Mr. Balfour. Lord Rayleigh is chairman of the general board of the laboratory; Professor Glazebrook is the director of the laboratory, and has a corps of eighteen assistants. Much of the equipment of the laboratory comes by gifts from individuals and commercial firms, although the government erected the buildings at a cost of £19,000. The old-established Kew Observatory now forms part of the laboratory.

Medals and Prizes.—The Hodgkins gold medal of the Smithsonian Institution, the first since 1899, "for the increase and diffusion of more exact knowledge in regard to the nature and properties of atmospheric air in connection with the welfare of man," has been awarded to Prof. J. J. Thomson, of Cambridge, for his investigations on the conductivity of gases, especially those that compose the atmospheric air. The Hughes medal of the Royal Society has also been awarded to Professor Thomson for the same investigations. The Royal Society has awarded the Davy medal to Professor Arrhenius of Sweden for his dissociation theory, and a Royal medal to Prof. H. Lamb for his investigations in mathematical physics. Nobel prizes in physics have been awarded to Professors Lorenz and Zeeman, in Holland. The Accademia dei Lincei, at Rome, has awarded a Royal medal to Professor Cantone, of Pavia, for researches in the phenomena of elasticity of overstrained bodies.

The Berlin Academy announces a prize of 4000 marks for the best research, combining theory with experiment, in connection with the role played by electrically charged particles, called electrons, in the ordinary conduction in metals and gases and the phenomena of absorption and emission of light. The prize is not to be awarded until after the end of 1904.

The Metric System.—The committee on coinage, weights, and measures, of the House of Representatives, made in the spring, in connection with a bill requiring the early adoption of the metric or decimal system of measures in the government departments, a thorough investigation of the advisability of such a move. Representative scientists, engineers, manufacturers, and business men were asked to testify before the committee, and resolutions advocating the passage of the bill were sent in by most of the scientific and engineering societies of the country. The result was an overwhelming mass of opinion in favor of the early adoption of the metric system in all measurements. The prospects for the passage of the bill were considered favorable at the close of the year.

At a conference between Mr. Chamberlain, secretary of state for the British colonies, and the prime ministers of the self-governing colonies, a strong resolution was passed affirming the desirability of the adoption of the metric system by all the British colonies.

PHYSIOLOGY, CHEMICAL. See CHEMISTRY (paragraph Physiological Chemistry).

PIERCE, HENRY MILLER, one of the organizers of the army ambulance corps, died February 19, 1902, at Ocala, Fla. He was born October 6, 1831, in Susquehanna County, Pa.; graduated at Colby College, and became president of Rutgers Female College in 1860. In the early part of the Civil War, with Dr. Lieber and Judge White of New York, he organized the ambulance corps and supervised its work. In 1887 he founded a city in Tennessee, the government of which was based on his theories of municipal affairs. It is now known as West Nashville, and is one of the most flourishing cities of the State. He was one of the first to exploit the commercial value of wood alcohol and introduce it into the market.

PIOUS FUND. See ARBITRATION, INTERNATIONAL (paragraph Pious Fund Decision).

PLANETOIDS. See ASTRONOMICAL PROGRESS.

PLANITZ, KARL PAUL VON DER, a German soldier and statesman, died August 19, 1902. He was born September 20, 1837, in Hohengrün, Vogtlande, and entering the German army in 1855 became a lieutenant in 1856, an officer of the general staff in 1861, and participated in the Holstein expedition of 1864. In 1867 he served as adjutant to Crown Prince Albert, and during the Franco-German War was on the general staff of the Twelfth Army Corps stationed with the army of the Meuse. From 1873 to 1883 he was Saxon military attaché at Berlin, and was then made chief of staff of the Saxon army corps. He became a major-general in 1888, commander of the Forty-fifth Brigade of Infantry in 1889, succeeded Count Fabrice as Saxon minister of war in 1891, and in 1896 was made infantry general. He was one of the party that accompanied Prince Henry of Prussia on his visit to the United States in 1902.

PLATINUM. See MINERAL PRODUCTION.

POLAR EXPLORATION. See ANTARCTIC EXPLORATION and ARCTIC EXPLORATION.

POLISH OLD CATHOLIC CHURCH. See PROTESTANT EPISCOPAL CHURCH.

POLITICAL AND SOCIAL SCIENCE, AMERICAN ACADEMY OF, founded in 1889 to promote the political and social sciences. President, Prof. L. S. Rowe, Ph.D., University of Pennsylvania; secretary, Prof. James T. Young, Ph.D., University of Pennsylvania. Membership, 1990, scattered over every State in the Union and thirty-four foreign countries. *The Annals,* a bi-monthly publication, is the organ of the Academy. The annual meeting for 1902 was held at Philadelphia, April 4 and 5. Hon. Martin A. Knapp delivered the annual address, on *Social Effects of Transportation,* in which he showed the immense effects of the modern development of transportation means upon the form and organization of society. At the first session, Senator Marcus A. Hanna presented a paper on *Industrial Conciliation and Arbitration,* which was a plea for organization of both employees and employers, and the arbitration of differences through their responsible representatives. Only by means of better and more responsible labor organization can wasteful strikes be avoided. The employer must go more than half way in the matter of conciliation, for he is responsible for the conduct of industry and the wages of the employees. President Samuel Gompers, of the American Federation of Labor, followed with an address on the *Limitations of Conciliation and Arbitration,* in which he strongly objected to compulsory arbitration and advocated

the strike as the final appeal of workmen for justice. *Results Accomplished by the Industrial Department of the National Civic Federation* was the subject of a paper by Hon. Oscar S. Straus, former United States minister to Turkey. *Cooperation of Labor and Capital* was treated by William H. Pfahler. Alexander Purves, treasurer of Hampton Institute, Virginia, spoke on *Harmonizing Labor and Capital,* strongly advocating profit-sharing and investment of earnings by employees in the industry with which they are connected. The second session was taken up with the housing problem, at which Hon. Robert W. De Forest, tenement house commissioner of New York City, spoke on *Tenement House Regulation;* Miss Jane Addams, of Hull House, Chicago, presented the *Housing Problem of Chicago;* the report prepared by the Octavia Hill Association gave some of the conditions in Philadelphia; *Housing Conditions in Boston* was treated by Robert Treat Paine; and *Housing Conditions in Jersey City* was the subject covered by Mary B. Sayles, fellow of the College Settlements Association. The first session on April 5 was devoted to the child labor problem. In a paper on *Child Labor Legislation,* Mrs. Florence Kelley, secretary of the National Consumers' League, rehearsed briefly the legislation that has been enacted to protect children. The business man's views were presented by Mr. Franklin N. Brewer, general manager Wanamaker store, Philadelphia, in a paper on *Child Labor in the Department Store.* Mr. Brewer thought the time spent in school was a handicap to business success. The methods of the shop and store are being more and more introduced into the schools, but the reverse is not true of this country at least. Mr. Brewer held that boys and girls may earn a living in the shop and at the same time acquire an education just as broad and much more practical than can be obtained in the schools. The boys and girls of the Wanamaker store are organized into schools, where they are taught the elementary branches. This taking over the school into the shop he thought more practical than the attempt to take the shop into the school. *The Necessity for Factory Legislation in the South* was urged by Hayes Robbins, dean of the Institute of Social Economics, New York. *Child Labor in New Jersey,* by Hugh F. Fox, president New Jersey State Board of Children's Guardians, showed the unreliability of official figures as to the number of children employed or the conditions of employment in New Jersey factories. The age limit (sixteen years in New Jersey) is habitually disregarded, and, worse, the physical condition of children is almost totally neglected. The legislation in Belgium regarding child labor was reviewed in a paper by Prof. Ernest Dubois, of the University of Ghent. It remains to be seen whether the law can or will be enforced. Mr. Henry White, secretary of the United Garment Workers of America, gave one of the most interesting addresses of the meeting on *Machinery and Labor.* He showed the futility of opposing the adoption of machinery and maintained that with intelligent acquiescence on the part of workmen the market will expand so quickly with the cheaper machine production that very soon more men will be required in the industry than before the introduction of machinery. He cited the example of the Typographical Union, which accepted the linotype without protest and thus succeeded in securing a rate of wages considerably above that received by hand compositors. Each machine displaced three men, but in less than three years, owing to the increase in the printing business, more men were employed than ever before. The great evil of machine production is the exploitation of child labor. This evil must be overcome by educating the public conscience. *Tendencies of Factory Legislation and Inspection in the United States* was dealt with by Sarah S. Whittelsey, Ph.D., New Haven, Conn. Legislation has continually progressed toward exact and minute regulation, but inspection always lags far behind legislation, until it has come to be believed that factory legislation is not intended seriously, but is merely a sop to keep the labor vote solid. Factory inspectors should be distinct from the ordinary police. The lack of uniformity in labor laws in the different States is one of the most embarrassing circumstances. A national law is impossible, and the probability of anything like concerted action by the individual States is remote. The attitude of the courts is rather favorable to an increased supervision of labor conditions.

POLITICAL ECONOMY. *General and Theoretical Works.*—No works of first importance on theoretical economics appeared during 1902. The most remarkable book in this field was, perhaps, Professor Patten's *Theory of Prosperity,* which is full of suggestion and marked by the author's clear, aggressive thought. The classical division of income into wages, profits, and rent is regarded as an arbitrary arrangement based on the fact that there were three distinct classes in England at the time when the division was made a part of economic science. At present, in the United States, at least, the old distinction between capitalist and landlord has broken down, and the barriers separating wage earners from other groups are weakened and growing weaker. Under a free economic organization all class barriers would be swept away and with them would disappear all so-called functional distribution. The entire income of society might then be called wages,

interest, or rent, according to the point of view. Professor Patten makes consumption the basis of economic life. Man starts out with a surplus of energy which he employs in producing goods, which he consumes, giving a new surplus of energy to be used up in further production, thus completing the cycle. It would be possible to live and work without pain, goods never becoming scarce enough to have value, if it were not for the growth of wants. "Wants grow more rapidly than productive power. This is an elementary law to which there are no exceptions." For this reason goods acquire a scarcity value. In more evolved societies men derive their incomes more or less from monopoly advantage. Monopoly is possible because productivity increases irregularly in different industries, giving some an advantage in the adjustment of prices. The most important check upon monopoly is the power of the consumer to substitute other articles for those controlled by the monopolist. When substitutes are found for all monopolized goods, there will be no more monopoly. This condition is to be brought about by invention and mobility of consumers, not as has been heretofore suggested, by legal restrictions and free competition among producers. What one monopolist gains all other monopolists lose, because there is a definite monopoly surplus, which limits monopoly profits. Interest is ascribed to discount of the future, but in a different sense from that employed by Böhm-Bawerk. He makes consumption, as might be expected, the basis for interest. He abandons the theory of decreasing utility and boldly says the greater the quantity of goods, the greater is their value per unit. He arrives at this startling conclusion by means of his theory of the multiplying wants of man, each new want being of a higher order than the one preceding. In the author's view this estimating at present values, of goods that will have increased value in future, because of increased demand, accounts for interest. In Part II. Professor Patten takes up forces of heredity, asserting that as a people progresses, the toilers continue to receive the low wages to which they are accustomed, leaving the increased fund of social income to be seized by exploiters of labor. Two things act to overcome this maladjustment: (1) the exploiters die off from over-nutrition or debauchery; (2) they become philanthropic and share the surplus with their fellowmen. One of the books of the year which will arouse much discussion is *Our Benevolent Feudalism*, by W. H. Ghent. The author thinks society is moving toward a new form of feudalism, in which the laborer will have a fixed place with enough to keep him comfortable and contented, for that is the employer's interest. Strikes will be impossible in any one industry, as the employers will be combined to prevent such disturbances. Government, while retaining the form of democracy will become a virtual oligarchy. Although the views expressed are extreme and even pessimistic, yet the trenchant vigor of the criticisms are too true to be put lightly aside. Another book that attracted considerable attention was *Psychologie economique*, by G. Tarde, professor in the College of France. The author proceeds upon the same principles which he laid down in his well-known sociological works, viz., the study of the beliefs and desires of individuals and their mutual inter-psychological effects. Economics falls into three divisions, "Economic repetition," "Economic opposition," and "Economic adaptation." The fourfold division of the classical economists is rejected. Capital is regarded as psychological—the sum of existing inventions, i. e., the knowing how to produce.

The periodical literature in economic theory was quite as scanty as that in books. Professor Homer J. Davenport, of the University of Nebraska, wrote on *Proposed Modifications in Austrian Theory and Terminology*, for the May number of the *Quarterly Journal of Economics*. The same number contains a long article, *Böhm-Bawerk on Rae*, by Charles W. Mixter. *The Variations of Productive Forces*, by Professor Charles J. Bullock, of Williams College, appeared in the August issue of the same journal. Professor Bullock sums up his statement as follows: "The laws of the variation of productive forces: I. Of a given area of land (Law of diminishing returns); II. Of a single plant or establishment (Law of economy in organization); III. Of an entire industry: (1) Under static conditions (Law of varied costs); (2) Under dynamic conditions (Law of increasing or decreasing costs)." *The Roundabout Process in the Interest Theory*, by Frank A. Fetter, of Cornell University, in the November issue is a criticism of the Austrian theory of interest.

Historical and Statistical Works.—In the field of historical and statistical economics, a great mass of literature was produced, though none of very great importance. The most significant treatise on economic interpretation that has appeared recently was the volume called *The Economic Interpretation of History*, by Professor Edwin R. A. Seligman, of Columbia University, New York. The thesis of this work, which is the expanded and developed form of Professor's Seligman's address to the Economic Association in 1901, is contained in this statement: "The existence of man depends upon his ability to sustain himself: the economic life is therefore the fundamental condition of all life." Professor Seligman traces the history and an-

swers categorically the criticisms of the economic interpretation; but he vanquishes the critics, not so much by proving them to be in the wrong as by defining economic materialism so as to exclude all the points objected to. He says there is no "economic man" just as there is no "theological man." There can be as many ways of interpreting history as there are classes of human activity, but the economic interpretation is the most fundamental. As humanity advances the economic forces will hold less and less sway; but though the theory of economic interpretation should be abandoned, it must be recognized that it has greatly stimulated and strengthened human intelligence.

As usual, the German literature in the field of historical economics is greater in volume than that of all other countries combined. *Der Moderne Kapitalismus* is a two volume work by Professor Werner Sombart, of the University of Breslau. Volume one treats of the genesis of capitalism and volume two gives the theories of its development. Professor Sombart thinks that capital originated from the rent surplus of land. Professor Gustav Schmoller, of Berlin University, published a work called *Die historische Lohnbenegung und ihre Ursachen*, which is marked by the author's usual profundity. Other important works are *Zur Geschichte der Werttheorie in England*, by Dr. W. Liebknecht; *Studien zur Theorie und Geschichte der Handelskrisen in England*, by Dr. Michael von Tugan-Baranowsky; *The American Cotton Industry*, by T. M. Young; *Financial Crises and Periods of Industrial and Commercial Depression*, by Theodore Burton. The periodical literature, though considerable in extent, is hardly important enough to catalogue.

Labor and Capital.—The literature on trusts and labor conditions like that on the more purely historical economics was almost limitless in amount, but no new developments of importance are to be noted. A valuable bibliography with the title, *A List of Books Relating to the Trusts*, was prepared by A. P. C. Griffin of the bibliographical department of the library of Congress. Bolen's *Plain Facts as to the Trust and the Tariff* is a sane work prepared for the purpose of popularizing the most recent theories regarding the proper status and control of trusts. Paul de Rousiers published *Les syndicats industriels de producteurs en France et a l'etranger*, which contained the most recent information, especially regarding the French combinations and agreements. In the field of labor organization several books may be mentioned; *De la division du travail social*, by Emil Durkheim. *Le contrat collectif de travail*, by Arthur Rousseau is a thorough study of collective bargaining between employers and employees from both the economic and legal aspects. *Le contrat de travail* by Paul Bureau is only secondarily concerned with labor, being an argument for the extension of industrial capitalistic organization as a means of increasing wages. The example of industrial organization in the United States is appealed to for support of the theory. A new edition of *Industrial Democracy* by Sidney and Beatrice Webb appeared. The *Quarterly Journal of Economics* for February contains an article by Prof. Edward S. Meade, University of Pennsylvania, on *Capitalization of the United States Steel Corporation*. A reply to Professor Meade's paper was made by G. C. Selden in the May issue. *The Rise and Supremacy of the Standard Oil Company*, by Gilbert Holland Montague, also in the February number, is noteworthy. The *American Journal of Sociology* for July contains an article on *The Trust Problem Restated*, by Victor S. Yarros. Mr. Yarros suggests that the question of credit, the machinery for supplying capital to industry, has been much neglected in considerations of the trust question. "A rigid, inadequate, and crude currency and banking system favors concentration and monopoly." It discourages small independent enterprises. Improvement in banking laws would do much to dispose of the evils of trusts. The *Anthracite Conflict*, by Peter Roberts, appeared in the *Yale Review* for November. *Trusts and Prices*, by I. A. Hourwich, of Columbian University, in the *Annals* for November, deals with the material collected by the Industrial Commission. The *Political Science Quarterly* for September had an article by John Martin, *Do Trade Unions Limit Output? Authoritative Arbitration* by Prof. John B. Clark, of Columbia, advocating compulsory settlement of differences between labor and capital, and *The San Francisco Labor Movement*, by Thomas Walker Page, appeared in the December issue. A paper by Francis B. Forbes, on *Beneficiary Corporations Doing Business in Massachusetts*, came out in the *Quarterly of the American Statistical Association* for March. The English *Economic Journal* contained *American Trusts and English Combinations*, by Evelyn Hubbard in the June number, and *Business Aspects of British Trusts*, by H. Macrosty in the September issue. *The Effect of Factory Legislation on Wages* is considered by G. H. Wood in the June issue of the *Journal* of the Royal Statistical Society. The German periodicals, as usual, contained many thoughtful essays on problems of capital and labor. The most noteworthy perhaps were: *Die Frage der Regelung der Fabrikarbeit verheiraleter Frauen nach den Ergebnissen der in Jahre 1899 veranstalteten Reichsenquete*, by Dr. von Brandt; *Der Kapitalismus*, by W. Neurath; and *Der Fabrikbegriff und die Handwerksorganisation*, by Hugo Riekes,

which appeared in the *Jahrsbücher für Nationalökonomie und Statistik,* for April and August.

Finance, Taxation, Money, etc.—Limitations of space prevent the cataloguing of more than a very few of the more important works in this field of economics. *Savings and Savings Institutions,* by James Henry Hamilton, must be given high rank. This book exalts the savings bank as the most conservative, the most logical, and the most hopeful means of raising the workingmen. The author advocates governmental action to foster habits of economy, but criticises unfavorably the German system of compulsory insurance and such schemes. *Statistical Studies in the New York Money Market,* by John Pease Norton, is a highly technical and important application of the modern statistical method to economic questions. *The Evolution of Modern Money,* by William Walter Carlile, is a historical work of considerable value.

The *Annals* contained the following: *The Taxation of Corporations in the United States,* by Francis Walker, Cleveland, O., in the March number; in the November number, *Responsibility of the National Banks in the Present Crisis,* by Albert S. Bolles; *Is the United States Treasury Responsible for the Present Monetary Disturbance?* by Frederick A. Cleveland, University of Pennsylvania; *The Currency of the Philippine Islands,* by Charles A. Conant, of New York; *The Financing of the South African War,* by F. R. Fairchild, of New Haven, Conn.; *The Work of the Promoter,* by Edward S. Meade, University of Pennsylvania; *The Independent Treasury vs. Bank Depositories,* by Charles S. Potts, Agricultural College of Texas. *Excise Taxation in Porto Rico,* by Prof. J. H. Hollander, Johns Hopkins University in the *Quarterly Journal of Economics* for February; and *Taxation in the Philippines,* by Prof. C. C. Plehns, University of California, in *Political Science Quarterly* for March give full information of the administration of the taxes in our island dependencies. Without pausing to note the endless array of German periodical literature on the subjects of banking, finance, and taxation, mostly of a local value only, attention should be called to two articles appearing in the English *Economic Journal* for September: *Taxation of Site Values,* by C. F. Bickerdike and an *Imperial Zollverein with Preferential Tariffs,* by C. F. Bastable. Of special interest is *A Financial Retrospect* by Sir Robert Giffen, which appeared in the *Journal* of the Royal Statistical Society for March.

Two encouraging features of the economic writings of 1902 are discernible to the careful observer: First, the more exacting application of the statistical method in attacking social problems; and second, the recognition that theory must not be submerged in a confusion of facts and figures. In America, at least, the historical school in distinction from the theoretical school has no existence. The Germans still hold aloof, preferring to attack economic problems by their chosen historical method.

POLO, in 1902, enjoyed the most active season of its history in the United States and greatly increased the number of its followers, extending from the circles of the exclusively wealthy to include teams from many organizations throughout the country. The event of chief importance during the season was the visit, to England, of an American team, consisting of R. L. Agassiz, Foxhall Keene, J. E. Cowdin, L. Waterbury, and J. M. Waterbury, Jr., substitute. Three matches, in contest for the International Polo Cup, won by England at Newport, R. I., in 1886, were played at Hurlingham and resulted as follows: May 31, United States 2 goals, England 1; June 9, England 6, United States 1; and June 21, England 7, United States 1; thus leaving the possession of the championship with England. The American players attributed their defeat to the unacclimated condition of their ponies and to a difference in rules, which in England permits the hooking of mallets, prohibited in this country. The senior championship, Saratoga, N. Y., August 2 to 7, was won by Lakewood, which defeated the Bryn Mawr team 5½ goals to 3¾. In the junior championships, Saratoga, July 29 to 31, the Rockaway team defeated the Country Club of Westchester in the final game, 12½ to 9.

In a match game played on the public polo grounds, Van Cortlandt Park, New York City, West Point defeated Squadron A by 9½ goals to 2½.

POOL. To followers of this game, the principal event in 1902 was the championship tournament, held in Brooklyn, N. Y. Of nine contestants, Charles Weston and W. H. Clearwater tied at 7 victories and 1 defeat, and the deciding game was won by the latter, 125 to 105. Grant Eby, who finished seventh in the list, challenged Clearwater for the championship and defeated him, 600 to 447. Eby was in turn challenged by Patrick Walsh, who had finished fifth in the tournament. Eby won the match, 600 to 375.

PORTO RICO, the smallest of the Greater Antilles, lies to the east of Haiti, from which it is separated by Mona Passage. The area is approximately 3606 miles. The best harbor is that of San Juan, on the north coast; on the south the

only harbors for vessels of ordinary draught are those of Ponce and Guanica. The population, according to the census taken by the United States government in November, 1899, was 953,243. Of this number 589,426, or 61.8 per cent., were whites, and 363,117, or 38.2 per cent., were colored, including those of mixed blood.

Government.—Porto Rico was acquired from Spain by the United States in virtue of the treaty of Paris, signed December 10, 1898, and ratified by the United States Senate February 6, 1899. It was governed as a military possession until May 1, 1900, when it was made by Congress a body politic, called *The People of Porto Rico,* and vested with some autonomous administrative and legislative powers. Under this act the executive power is vested in a governor and cabinet of five, appointed by the President; and the legislative power in a legislature, of which the governor, cabinet, and five other appointed members constitute the upper chamber, and thirty-five popularly elected members the lower. The upper chamber may reject measures of the lower, the governor has the usual qualified power of veto, and Congress retains the right of absolute veto. A resident commissioner to Washington is elected by popular vote. As in the case of the Territories of the United States, appeals lie from the insular court to the Supreme Court at Washington. In accordance with the organic act, free trade was declared between the United States and Porto Rico on July 25, 1901.

Finance.—The cash in the treasury of Porto Rico on June 30, 1901, was $563,650.54. The total receipts during the fiscal year ending June 30, 1902, were $4,472,192.63, and the total expenditures $3,113,721.77, leaving a balance on June 30, 1902, of $1,358,468.86. Besides this, there was, in the United States treasury, $431,128.24 not yet turned over to Porto Rico, but allotted to it for permanent improvements from the revenues collected in the United States on importations from Porto Rico, making the total cash assets of the insular government on July 1, 1902, $1,789,597.10. Of the amount in the Porto Rican treasury on July 1, 1901, $74,631.41 were insular funds proper, while $489,019.13 were a part of the trust fund given to Porto Rico by the United States. Further allotments from this trust fund, amounting to $1,009,925, were made during the year, of which some $486,000 were expended mainly for road and schoolhouse construction, leaving a balance of the trust fund in the insular treasury at the end of the year of $1,007,570.13. Other trust funds brought the amount up to $1,043,868.46, so that the insular revenues proper remaining at the end of the year were $1,358,468.86 less $1,043,868.46, or $314,600.40. Of the insular revenues proper during the year $848,258.30 were derived from customs receipts; $1,497,802.63 from internal revenue (of which 15 per cent. was allotted to the various municipalities); and $409,784.91 from a property tax of .5 per cent., collected on behalf of the municipalities. The total assessment of property in the island for 1902 was approximately $110,000,000. While the condition of Porto Rican finances, as shown above, was extremely favorable, it should be borne in mind that the trust fund donated by the United States relieved the insular treasury of heavy expenditures for permanent improvements, which it will be obliged to assume in the near future.

Agriculture.—Porto Rico is pre-eminently an agricultural country, 65 per cent. of its people are engaged in farming and the only manufacturing industries of any importance are those of sugar, tobacco, rum and straw hats. Of the total area of the country, however, only about 20 per cent. is cultivated, while 51 per cent. is pasture land, and 7 per cent. waste land. Of the cultivated lands 82,672 acres in 1900, and 91,000 in 1901, were planted in sugar cane. The area of coffee lands prior to the hurricane of 1899 was about 180,000 acres, while in 1902 they were estimated at 166,000 acres. The tobacco area, also considerably reduced in 1899, was estimated in 1902 at 4222 acres; at the same time 93,508 acres were planted in beans, rice and corn, and 17,176 in fruits. The three principal crops and those comprising the great bulk of the insular exports are sugar, coffee, and tobacco, of which the production in 1900, 1901 and 1902 was as follows: Sugar, 61,500, 95,850 and 185,000 tons, respectively; coffee, 9170, 14,500, and 6500 tons, respectively; tobacco, 3000, 4000, and 5000 tons, respectively. Sugar producing, at present prices, is a very remunerative investment, but new and modern machinery is imperatively required. The two largest factories are owned by Americans, and in 1902 propositions were pending for the completion of a number of other well equipped factories. There is no other Porto Rican crop increasing in area and production so rapidly as tobacco. The increase began with the spring planting of 1901, in anticipation of the removal of the tariff, and continued through 1902. During the past two years Americans have planted some 3500 acres with oranges. In 1902 the best sugar lands were valued at $150 per acre; tobacco lands at from $60 to $75 per acre, and fruit lands from $40 to $50 an acre; pasture lands from $15 to $20 an acre; and coffee lands from $10 to $15 an acre.

Public Lands.—By a congressional act of July 1, 1902, the President was authorized to make reservation, before July 1, 1903, of such lands and buildings belonging

to the United States in Porto Rico as were requisite for military, naval, customs, postal and other public purposes, and to grant the remainder, exclusive of harbor areas, navigable streams and bodies of water, to the government of Porto Rico, to be held or disposed of at its pleasure.

Commerce.—The total value of the exports of merchandise from Porto Rico for the calendar year 1902 was $13,350,536, and the total value of the imports was $14,467,627, as against $10,472,270 and $10,955,813, respectively in 1901. The exports of domestic merchandise to the United States were $3,078,648 in 1900; $6,958,677 in 1901, and $9,530,548 in 1902. The imports of United States merchandise to Porto Rico amounted to $4,640,449 in 1900; $8,751,751 in 1901, and $12,029,090 in 1902. Thus since the inauguration of American government in the island and the declaration of free trade between the two countries, their commerce has increased by about 200 per cent. The principal items of merchandise shipped from the United States to Porto Rico during 1902 were: Breadstuffs, $1,146,130; cotton manufactures, $1,970,828; iron and steel, $1,642,085; provisions, $1,455,160; wood, $594,379; and leather, $308,588. The leading exports from Porto Rico to the United States were sugar, $6,754,261, and tobacco, almost entirely in the form of cigars, $2,192,790. Of the total exports of Porto Rico to foreign countries in 1902, amounting to $3,676,-657, France took $1,064,394; Germany, $303,670; and Cuba, $562,749. The large shipments to France are accounted for by the fact that Porto Rican coffee is accorded preferential treatment in the French markets. During the fiscal year 1902, 222 American and 295 foreign ships entered the harbors.

Banks.—There were in Porto Rico at the end of the fiscal year 1902, eight incorporated banks with an aggregate capital of $1,417,725, deposits of $2,489,449, and assets of $5,359,189. Of these the only bank of issue was the Spanish-American Bank of Porto Rico, chartered by the Spanish crown and permitted to issue notes to three times its paid up capital. The insular authorities objected to this excessive issuing power and the bank agreed to limit its notes. Although under an opinion rendered by the attorney-general of the United States in June, 1900, national banks might be organized in Porto Rico, none were organized until November 10, 1902, when the First National Bank of Porto Rico was chartered to take over the American Colonial Bank, organized under the laws of West Virginia. As stated by the treasurer of the island, there was great need for further banking capital in Porto Rico, realty loans being hard to obtain at 10 to 20 per cent. interest. But the peculiar conditions under which banking had to be done in Porto Rico made it difficult for banks to organize under the national banking laws, which it was strongly urged should be modified. These laws prohibited branch banking, forbade the loaning of money on long-time notes secured on real estate mortgages, and permitted bank issues only to an amount equal to the face value of United States bonds deposited with the treasurer of the United States. One reason, as stated by the insular treasurer, why interest on real estate loans remained so high, was that no general survey of the island had ever been made, and hence all questions of title were in doubt. The legislature of 1902, recognizing this, appropriated $5000 to enable the governor to co-operate with the United States Geological Survey to secure a general topographical survey of the island. The legislature also passed a law permitting the organization of cooperative savings and loan associations, which follows closely the provisions of the Massachusetts cooperative savings banks act, and provides for official supervision and examination.

Communications.—The work of bettering communications in the island, so necessary to its continued industrial progress, has been pushed steadily forward since the American occupation. At that time, there were in Porto Rico only 177.5 miles of highways. By the end of the fiscal year 1902, 87.5 miles additional had been completed; 65.5 miles of new roads were under construction; 55.3 miles of old roads were under repair; and 160.5 miles of new routes had been surveyed. This work cost $256,000 during the year 1902. Plans were also perfected within the twelvemonth for the extension of old railway lines, and the building of new ones.

Code Commission.—The commission provided for by an act of the legislative assembly on January 31, 1901, to revise and codify the system of laws, reported to the governor on December 31, 1901, and the report was by him transmitted to the legislature. The commission consisted of Prof. L. S. Rowe, J. M. Keddy and Juan Hernandez Lopez. Penal, criminal, civil and political codes were prepared by them, but for lack of time a code of civil procedure was not undertaken. The penal and criminal codes were practically new, being modeled after American laws; the civil code was a revision, and the political code was mainly a codification of a number of special Spanish laws.

Legislature.—The second session of the legislative assembly of Porto Rico convened on January 1, 1902. The members were all Republicans, the Federal party being unrepresented. The main work of the session consisted in amending and revising the laws that had been passed at the first session in 1901, in order better

to meet existing conditions. Among the laws enacted were an act relating to municipal police; an act reducing the number of municipalities; a general municipal law; and a law modeled largely after that of New Jersey, providing for the regulation and incorporation of domestic corporations, and requiring fees to be paid by them in proportion to the amount of capital stock issued. New acts, following substantially the laws under which the first general election was held in Porto Rico, were passed for regulating elections and the registration of voters. The system adopted was practically that known as the Australian system. A law was passed increasing the excise tax on beer and wine from 15 to 20 cents per gallon and increasing the fee for licenses for the sale of beer, wine, tobacco, arms and ammunition from 20 to 50 per cent.

Judicial System.—New codes of penal law and criminal procedure and also a political code, were enacted by the legislature of 1902. The new penal code and the code of criminal procedure, both taking effect on July 1, 1902, were patterned, with a few exceptions, after the California code. The important changes effected by the new codes were: (1) That judges are given much more discretion in the consideration of aggravating or extenuating circumstances, and in fixing the penalty accordingly; and (2) that various crimes, like embezzlement and seduction, whose prosecution was formerly in the control of the persons wronged, are made public offenses within the cognizance of the public prosecutor. The jury system, established by the legislature in 1901, had not, up to the end of the fiscal year 1902, been invoked to any extent, there having been in the aggregate only twenty-four jury trials. The judicial officers of the island consist at present of forty-eight justices of the peace, five District Courts with general civil and criminal jurisdictions, five judges of the Supreme Court, and a United States District Court. The chief law officer of the government is the attorney-general, who appears before the courts in cases in which the government is interested.

Education.—The report of the commissioner of education for Porto Rico showed that the number of schools open during all or part of the school year ending in June, 1902, was 919, and that 987 teachers were employed, of whom 131 were Americans and 856 Porto Ricans. Of the schools 47, with an average attendance of 1489 pupils and a total enrollment of 2767, were special schools, such as kindergartens, night schools, normal schools, and high schools. The other 882 were graded common schools, with an average attendance of 39,504 and a total enrollment of 59,096. These schools, constituting the basis and by far the greatest part of the educational system, have been rapidly increased, the number being 525 in 1899 and 733 in 1901. But that this number is still entirely inadequate is seen from the fact that the average attendance at all schools was 40,993, while the estimated population of school age is over 300,000. Nevertheless the Porto Ricans have contributed most generously for educational purposes, the municipalities giving in the past year $120,000, or nearly a fourth, and the insular government some $500,000, or over a fourth, of their entire revenues. In addition to these sums, $170,000 were expended, from the refunds made by the United States on Porto Rican duties, for the construction of school buildings, leaving a balance on that account in October, 1902, of about $175,000, and making a total expenditure to date of $400,000. For the school year ending in June, 1903, the insular government provided about $550,000, and it was estimated that not less than 1200 schools would be opened. The common graded schools, similar in their main features to those in the eastern or New England States, practically exhausted the government's resources, and it was only for these elementary schools, moreover, that there was wide public need. A strong plea was made by the commissioner for the establishment either by federal grant or private endowment of an American-Porto Rican university.

Municipal Affairs.—One of the most perplexing problems confronting the insular government from its installation was that of the readjustment of municipal affairs, especially as regards finance. This resulted mainly from the habit of absolute dependence upon a central government engendered by the Spanish régime, and from corruption, inefficiency, and local prejudice. The matters calling for immediate action were, first, to arrange for the large floating indebtedness of the municipalities and to make provision for the construction of needed works of public utility; and, second, to place the whole municipal governmental system upon a stable basis. For these purposes, three important acts were passed by the legislature in 1902. Under these, the number of the municipalities was in the first place reduced from 68 to 46, the smaller and poorer municipalities being consolidated with the larger ones. In the second place, a general municipal law was passed defining the number, duties and salaries of officers; delimiting the expenditures to be made for the various government purposes, and giving the insular treasurer extensive power when necessary to interfere in matters of municipal finance. Finally, the general taxation law of 1901 was so amended as to effect a practically complete divorce between municipal and insular taxation. Authority was given the municipalities to levy a general tax

of 1 mill for school purposes, and it was provided that not less than 25 per cent. of all taxes collected on general property within the rural portions of municipalities should be set aside as special road funds. While the law of 1901 furthermore provided that not less than 10 nor more than 20 per cent. of all municipal revenues should be used for school purposes, the law of 1902 provides that the municipal school fund shall aggregate not less than 15 nor more than 25 per cent. of the municipal revenues. Perhaps the most important feature of the new municipal enactments is that permitting the insular treasurer to prescribe for all municipalities a uniform system of accounting, authorizing him to inspect such accounts, and directing the municipal authorities to submit to him periodical reports. It was also provided that in framing their annual budgets each municipality should, first of all, arrange to meet contracts already entered into or deficits from previous years. So long as these conditions are observed, the insular government cannot intervene; but if the conditions are not met, the treasurer is given extensive power to alter or amend succeeding budgets, in his discretion. The municipalities are allowed full freedom of action so long, and only so long, as they fulfill their legal obligations. The success of the endeavors to place the municipal finances of the island upon a stable basis was shown by the successful floating of municipal bonds, amounting to $1,110,000, during 1902. Of the aggregate amount issued, $545,476.09 was for the payment of outstanding obligations, and $554,523.91 was for public improvements.

Territorial Officers.—For 1902: Governor, William H. Hunt; secretary, Charles Hartzell; attorney-general, James S. Harlan; treasurer, William F. Willoughby; auditor, John R. Garrison; commissioner of education, Samuel M. Lindsay; commissioner of the interior, William H. Elliott; United States district judge, William H. Holt; United States district attorney, N. B. R. Pettingill; resident commissioner to the United States, Frederico Degetau.

Supreme Court: Chief justice, José S. Quinones; associate justices, Louis Sulzbacher, José C. Hernandez, José M. Figueras, and James H. McLeary.

PORTUGAL, a constitutional monarchy of western Europe. The capital is Lisbon.

Area and Population.—The area, including the Azores and the Madeira islands, is 30,038 square miles, and the population, according to the preliminary returns of the census of 1900, was 5,428,659, showing an increase of 378,930 since 1890. The largest cities are Lisbon, 357,000; Oporto, 172,421; and Braga, 24,309. The state church is the Roman Catholic, but there is religious toleration. The total Protestant population, however, does not exceed 500. The pupils in the public and private elementary schools in 1890 numbered 237,791. There is a system of government normal and technical schools, colleges of law and medicine, and the University of Coimbra (founded in 1290), with 1684 students in 1901. Primary education is only nominally compulsory. The percentage of illiterates in the country in 1890 was 79.2.

Government; Army and Navy.—The executive authority is vested in a king, assisted by a ministry of seven members responsible to the legislature, or Cortes. The Cortes consists of two branches, a chamber of peers, appointed by the king, and a chamber of deputies, elected for a four-year term, on a limited franchise.

There is a standing army of 33,068 officers and men, which can be recruited up to a war footing of 111,137, or with the reserves, 175,380. The personnel of the navy numbered 4898 men. The steam vessels of the navy, including only one armed battleship, numbered 39, with a small fleet of old-fashioned sailing vessels.

Finance.—The monetary standard is gold, and the unit of value is the milreis, valued at $1.08. The finances of the country have been in a bad condition for many years, and successive finance ministers have tried in vain to solve the problem that the increasing annual deficit involves. Only five times since 1851 has the budget shown an excess of receipts over expenditures. The receipts for 1901-02 amounted to 53,269,747 milreis, and the expenditure to 55,239,748 milreis. The budget estimates for 1902-03 placed the receipts for the current financial year at 54,913,074 milreis, and the expenditure at 55,861,938 milreis. The greater part of the revenue is derived from direct and indirect taxation. The national debt (1901) is £165,596,862, but there is in addition a floating debt of 51,537,484 milreis, which is a heavy drag on the treasury, and the government is anxious to merge it into the other national debt. In May, 1902, the passage of a bill for the conversion of a part of the external debt created widespread discontent. (See below.) In November there were rumors of a new loan, which it was expected would be floated with difficulty, owing to the recollection of the outrageous treatment of former bondholders in 1893. The chief circulating medium is paper money, of which there is a total note circulation of 127,230,369 milreis, 68,154,396 milreis of which are notes of the Bank of Portugal and the rest notes of private banks.

Commerce, Industries, etc.—The chief products are wine, wheat, rye, maize,

oranges, tomatoes, and potatoes. There are valuable mineral deposits of iron, copper, coal, lead and sulphur, but the mines are little developed, the entire value of the product in 1900 amounting to 2,116,718 milreis. The entire industrial population in 1900, exclusive of those engaged in agriculture, numbered 447,620. Cotton cloth is the principal manufactured article. The imports and exports (in milreis) for the years 1898-1901 were as follows:

	1898	1899	1900	1901
Imports	50,802,447	51,538,465	60,221,703	57,868,206
Exports	33,203,241	30,020,294	32,564,035	28,283,659

The figures for 1901 do not include coin and bullion. The export of wine, the most important product, amounted in 1900 to 82,866,090 litres, valued at 10,628,535 milreis. The length of railways open for traffic in 1901 was 1464 miles, of which 507 miles belonged to the state.

History.—Disturbances occurred in May and June, as a result of the introduction of a government measure in the chamber of deputies approving an arrangement with Portugal's foreign creditors for the conversion of the foreign debt, by which a percentage of the customs receipts was to be administered by a commission for the benefit of the creditors. Protests were lodged by merchants and by officers of the army and the navy, but the king refused to consider them, and demonstrations of the students at Coimbra and Lisbon had to be stopped by the police. The bill, in spite of the opposition, passed both the chamber and the peers, and at once received the assent of the king. It was supported unanimously by the Clerical or Conservative party, which is dominant in both houses, and which can always be depended upon to vote blindly for any measure the government submits. The Progressists or Liberals, and other anti-ministerial groups, are, on the other hand, just as blind in their opposition to anything that has the ministerial stamp of approval upon it. On November 6 a severe earthquake occurred in Guarda Beira province, resulting in serious loss of life and property.

PORTUGUESE EAST AFRICA. See East Africa, Portuguese.

PORTUGUESE GUINEA, a colony of Portugal on the western coast of Africa, between French Guinea and Senegal, has an estimated area of 4440 square miles and an estimated population of 820,000. For the fiscal year 1902 the estimated revenue and expenditure were 126,040 milreis, and 208,080 milreis, respectively. (The face value of the milreis is $1.08.) The chief products are palm oil, wax, and rubber. Imports and exports in 1899 were valued at 950,828 milreis and 332,979 milreis, respectively; exports in 1900, 401,455 milreis.

PORTUGUESE INDIA. See India, Portuguese.

PORTUGUESE WEST AFRICA. See Angola.

POTATOES. The potato crop of 1902 was a large one and the yield per acre was unusually high. The short crop of 1901 caused an unprecedented acreage to be planted. The season was not favorable in the spring, and during the summer the rain was excessive, causing much rot to develop in the early fall, in the East especially. In the New England States and New York there was extensive damage from rot. These conditions interfered to prevent what was at one time predicted

	Acreage.	Yield Per Acre, Bushels.	Production, Bushels.	Value.
Maine	80,627	130	10,481,510	$6,812,982
New York	407,082	66	26,867,412	15,851,773
New Jersey	57,113	132	7,538,916	4,598,739
Pennsylvania	246,619	83	20,469,377	11,667,545
Virginia	50,531	75	3,789,825	2,198,098
Ohio	165,252	94	15,533,688	6,834,423
Michigan	270,939	72	19,507,608	7,998,119
Indiana	82,860	101	8,368,860	3,431,233
Illinois	146,295	118	17,262,810	7,250,380
Wisconsin	250,022	115	28,752,530	9,488,335
Minnesota	137,270	98	13,452,460	4,170,263
Iowa	173,129	98	16,966,642	5,768,658
Missouri	95,579	128	12,234,112	4,281,939
Kansas	77,573	138	10,706,074	4,817,283
Nebraska	82,244	137	11,267,428	3,042,206
Colorado	47,437	100	4,743,700	2,419,287
California	47,975	118	5,661,050	3,283,409
Total for United States	2,965,587	96*	284,632,787	$134,111,436

*Average.

would be a record-breaking crop. As it is, the total production has only been exceeded once in this country, in 1895. Returns for this crop are made by the United States Department of Agriculture for every State and Territory except Arizona. Potatoes of excellent quality were produced on a small scale at a number of places in Alaska, where the growing of this crop is being taken up to a limited extent by the natives. The production in the States having 40,000 acres or upwards in this crop, and the totals for the United States, are given in the foregoing table.

Although the crop exceeded that of 1901 by nearly 100,000,000 bushels, it was valued at nearly $10,000,000 less than the 1901 crop, on account of the lower prices which prevailed. Good crops were harvested in 1902 throughout most of the Canadian provinces, although there also the rot caused much damage. The production reported for Ontario was 13,886,200 bushels, and for Manitoba 3,568,344 bushels. The crop in Russia, 1,044,861,365 bushels, was about 17 per cent. above the five-year average; and the crop in Sweden, 56,570,117 bushels, was considerably above the average for the past ten years.

The unusually short crop of potatoes in this country in 1901 caused a heavy increase in imports, the amount for the fiscal year ending June 30, 1902, being 7,656,162 bushels (valued at $3,160,801), against 371,911 bushels in the previous year. With two exceptions this was the heaviest importation of potatoes ever made. The short crop of 1881 resulted in imports the following fiscal year of 8,789,860 bushels, and another short crop in 1887 was followed by imports of 8,259,538 bushels. Curiously enough, in spite of the shortage in 1901, 528,484 bushels of this crop were exported in 1902. As a rule neither the exports nor the imports of potatoes are important.

POWELL, John Wesley, director of the United States Bureau of Ethnology, died September 23, 1902, at Haven, Me. He was born at Mount Morris, N. Y., March 24, 1834, of English parents, who removed to the west while he was quite young. After educating himself for a time at home he attended Oberlin College and Illinois College (Jacksonville, Ill.). Adopting the teachers' profession, he spent his vacations in travel and exploration and in collecting geological specimens. When the Civil War broke out, Powell enlisted in the Twentieth Illinois Regiment, in which he soon became a second lieutenant. At the battle of Shiloh he lost his right arm, but served through the war, retiring from the army with the rank of major. He then resumed scientific pursuits and became professor of geology at Illinois Wesleyan University. In 1867 he made his first geological exploration of the Colorado mountain region. In 1868 another exploring party was organized under government auspices, which carried on the first really scientific study of the Indians, and mapped a vast region never before explored by white men. The exploration of the Green and Colorado rivers was the most important work of this kind accomplished by Major Powell, and, owing to its adventurous and dangerous nature, it brought him prominently before the public. As a result of this trip there was organized a second exploring party to accumulate geographic and geological data, as well as to study the Indians. Major Powell directed this work in the field for about ten years. Since there were similar expeditions in the same field, it was urged by Powell that they be united into one organization forming a bureau under the control of the Department of the Interior. This (1879) marked the beginning of the United States Geological Survey, and also of the Bureau of Ethnology, of which Major Powell was appointed director, a position he held until his death, serving also as the director of the Geological Survey from 1881 until 1894. To his great industry and energy these two bureaus owe much of their present efficiency, and the geographical work of the Geological Survey, together with its studies on irrigation, was largely due to his efforts. He not only set the standards for the new bureau, but trained its workers and put the study of the Indians on a high scientific plane, which has since been maintained by American ethnologists. His interest in ethnology led him into the broader field of anthropology, and he was for many years the president of the Anthropological Society of Washington. In the realms of psychology and philosophy Major Powell was also a student, and the latter part of his life was devoted to this study, a work on *Truth and Error* being published in 1899, which was followed by a series of essays entitled *Good and Evil*, which appeared in *The American Anthropologist*. Few scientific men in the United States have been as catholic in their tastes and have succeeded in as many different fields as Major Powell. In each of the several fields he made valuable contributions, while as an advocate of reforms in the land laws affecting the development and irrigation of the arid lands of the west, his efforts have had their effect on legislation. Some of his publications are: *Exploration of the Colorado River* (1875), *Report on the Geology of the Uinta Mountains* (1876), *Introduction to the Study of Indian Languages* (1880), *Studies in Sociology* (1887).

PRECIOUS STONES. See Gems.

PRESBYTERIAN CHURCH IN THE UNITED STATES OF AMERICA, as an organization, dates from 1706, when the first presbytery was formed. The general synod was established eleven years later, and in 1789 the first general assembly met in Philadelphia. The church now comprises 32 synods and 233 presbyteries, with 1,045,338 communicants and 1,063,683 Sunday school members. There are 7617 ministers, and 7748 churches whose benevolent offerings for the last year aggregated $4,419,809. Contributions for all purposes amounted to $17,080,191, the chief items being: Home missions, $1,203,453; foreign missions, $898,079; education, $105,301; Sunday-school work, $136,757; church erection, $261,034; relief fund, $107,718; freedmen's missions, $145,611; aid for colleges, $425,421; congregational purposes, $12,575,456. Home missionary work is conducted throughout the United States and in Alaska, Porto Rico and Cuba, and 1350 missionaries and 490 missionary teachers are employed. There are mission schools among the Indians, Alaskans, Mormons, Mexicans, the mountaineers, and the people of Porto Rico and Cuba. The missions for freedmen, which are carried on by a separate board established in 1865, now embrace 353 churches and mission stations, having 21,341 communicants and 21,299 Sunday-school scholars. Boarding schools, 18 in number, including Biddle University at Charlotte, N. C., are maintained as a part of this work; also 88 day schools, which are attended by some 11,000 pupils. Statistics for the foreign field show 27 missions, 121 stations, 1286 out-stations, with 750 missionaries and 1882 native helpers; 610 churches and 44,443 communicants. Educational and medical work also has a prominent place in this department. The receipts in the past year have raised the amount of the twentieth century fund to $7,578,943.

The 114th general assembly, held in New York City, beginning May 15, 1902, was characterized by an action that has been termed one of the most important events in the history of American Presbyterianism, namely, the revision of the Westminster confession of faith. Dr. Henry Van Dyke, of Princeton, N. J., was elected moderator of the general assembly. Resolutions on the subject of divorce, and the appointment of a committee to confer with other denominations, some changes in the constitution, with the addition of a new chapter on organizations of the church, and the celebration of the centennial of the organized work of home missions, were among other matters that occupied the attention of the assembly. The report of the committee on creed revision was adopted by a practically unanimous vote. Its work, as defined by the last general assembly, consisted in preparing (1) a brief, clear, and untechnical statement of the principal doctrines of Presbyterian faith as a supplement to, but not as a substitute for, the Westminster confession; in preparing (2) amendments to specified sections of the confession "either by modification of the text or by declaratory statement," with additional chapters on the Holy Spirit, the love of God, and missions. This Brief Statement of the Reformed Faith, as approved by the general assembly, comprises sixteen articles: On God, revelation, the eternal purpose, the creation, the sin of man, the grace of God, election, our Lord Jesus Christ, faith and repentance, the Holy Spirit, the new birth and the new life, the resurrection and the life to come, the law of God, the church and the sacraments, the last judgment, and Christian service and the final triumph. It was adopted "with the view to inform and enlighten the people in regard to the significance and religious meaning of the reformed faith, and not with the view of becoming a test of orthodoxy for ministers, elders, and deacons."

The revision of the confession of faith provides for a declaratory statement on chapter iii. and chapter x., section 3, dealing respectively with the doctrines of predestination and of infant damnation. This declaratory statement repudiates the doctrine of infant damnation and holds that the doctrine of predestination is in harmony with God's love for all mankind, and "that no man is condemned except on the ground of his sin." Section 7 of chapter xvi., beginning "works done by unregenerate men" is changed in wording; and the last sentence of chapter xxii., section 3, treating of "lawful oaths and vows," is struck out. Section 6, chapter xxv., which contained the aspersions upon the Pope, now reads: "The Lord Jesus Christ is the only head of the Church, and the claim of any man to be the vicar of Christ and the head of the Church is unscriptural, without warrant in fact; and is a usurpation dishonoring to the Lord Jesus Christ." Besides the declaratory statement and amendments, two additional chapters, to be numbered xxxiv. and xxxv., were adopted on the "Holy Spirit" and on the "Love of God and Missions." It has been reported that creed revision is assured since the presbyteries generally are recording their approval of the overtures submitting these changes. The general assembly in 1903 will meet, May 21, in Los Angeles, Cal. Stated Clerk, Rev. William H. Roberts, D.D., LL.D., 1319 Walnut Street, Philadelphia.

PRESBYTERIAN CHURCH IN THE UNITED STATES, SOUTH, was established in 1864 by the union of two bodies that had previously withdrawn from the Presbyterian Church owing to differences on the slavery question. It has (1902) 13 synods and 79 presbyteries; 1501 ministers, 3017 churches, and 229,642 communi-

cants; and 2581 Sunday schools with 20,808 officers and teachers, and 151,364 scholars. The total contributions for the year were $2,227,649, the principal amounts being: For home missions, $161,614; for foreign missions, $131,756; for education, $132,521; for pastors' salaries, $820,193; for congregational purposes, $807,383. In Jackson, Miss., beginning May 15, was held the forty-second general assembly of the church. Several overtures came before the meeting on the subject of infant salvation, in answer to which was adopted an amended report which reads partly as follows: "This assembly is fully persuaded that the language employed in chapter x., section 3, of our confession of faith, touching infants dying in infancy, does not teach that there are any infants dying in infancy who are damned." The question of organic union with the Dutch Reformed Church also was introduced, but no final action was taken, it being deemed inadvisable until the desire of the two churches should be more definitely known. The report from the home mission field was encouraging, the board having closed the year without debt. The entire number of ministers and teachers supported was 132, and the number of churches aided, 325. The work of colored evangelization is progressing, the statistics for this department showing 53 ministers, 86 churches, and 2204 communicants. In the foreign missions of the church—Africa, Brazil, China, Cuba, Japan, Corea, and Mexico—there are 33 organized churches, having 4664 members, 191 out-stations, and 165 missionaries and 132 native helpers. One of the features of the year 1902 was the beginning in the Southern Presbyterian Church of the movement on the part of local churches to provide for the support of an individual missionary in the foreign field. The receipts, in contributions and subscriptions, for the twentieth century fund this year reached an aggregate of $423,000, which, however, is but a fourth of the whole sum, the various synods having undertaken to raise $1,720,000. The general assembly in 1903 will meet in Lexington, Va. Moderator, Rev. W. T. Hall, D.D.; stated clerk, Rev. William A. Alexander, D.D., Clarksville, Tenn.

PRESBYTERIANS, REFORMED. See Reformed Presbyterians.

PREVENTION OF CRUELTY TO ANIMALS, AMERICAN SOCIETY FOR THE. The thirty-seventh annual report of the transactions of the society for the year 1902 shows that there were 53,093 cases of cruelty to animals investigated during the year, with the result that there were 520 arrests and prosecutions; 4339 animals suspended from labor; 3804 horses and other large animals, disabled beyond recovery, destroyed; 90,794 small and homeless animals were also destroyed; 509 disabled horses and other large animals removed from the streets in ambulances. The income for the year was $143,416.39, of which $48,752.46 was in the shape of bequests. The expenditure was $145,140, and the balance in the treasury at the close of 1902 was $550.95. The society has placed itself on record as opposed to vivisection. President, John P. Haines; secretary and treasurer, John Mason Knox, Madison Avenue and Twenty-sixth Street, New York.

PREVENTION OF CRUELTY TO CHILDREN, NEW YORK SOCIETY FOR THE, reports, as the work of the year 1902, having received and investigated 8938 complaints, with the result that 3371 offenders against the law were prosecuted, of which number 2838 were convicted. There were 6574 children rescued from destitution and vicious surroundings; and 5769 children received food and clothing at the reception rooms of the society during the year. At the request of city magistrates there were 431 cases investigated and properly disposed of. President, John D. Lindsay; secretary and superintendent, E. Fellows Jenkins, United Charities Building, New York.

PRICES. For the years 1901 and 1902 the index number of *Dun's Review,* which is based on wholesale prices of 350 commodities weighted according to importance, gives the following results (the values stated are proportional, serving the purpose of percentages).

1901	Breadstuffs.	Meats.	Dairy and Garden.	Other Food.	Clothing.	Metals.	Miscellaneous.	Total.
January 1	$14,486	$8,407	$15,556	$9,504	$16,024	$15,810	$15,881	$95,668
February 1	15,062	8,592	13,866	9,418	16,271	15,845	15,956	95,010
March 1	15,070	8,696	13,898	9,396	15,460	15,875	16,471	94,866
April 1	15,221	9,294	13,519	9,208	14,991	16,048	16,629	94,910
May 1	16,112	9,251	14,983	9,154	14,945	15,179	16,596	96,220
June 1	15,635	9,224	13,161	9,116	14,882	15,249	16,532	93,799
July 1	14,904	9,430	11,030	9,086	15,098	15,344	16,617	91,509
August 1	16,668	9,151	13,261	9,253	15,027	15,345	16,625	95,330
September 1	17,369	9,530	13,009	9,153	15,234	16,091	16,525	96,911
October 1	17,146	9,517	13,164	9,190	15,279	15,760	16,835	96,891
November 1	17,840	8,929	13,622	9,157	15,342	15,876	16,977	97,943
December 1	19,528	9,259	15,675	9,081	15,331	15,722	16,782	101,378

1902	Breadstuffs.	Meats.	Dairy and Garden.	Other Food.	Clothing.	Metals.	Miscellaneous.	Total.	Per Cent. of Increase Over Previous Year.
January 1	$20,002	$9,670	$15,248	$8,952	$15,547	$15,375	$16,793	$101,587	6.1
February 1	15,505	9,494	14,384	8,961	15,460	15,494	16,278	99,576	4.8
March 1	19,868	9,884	15,611	8,910	15,498	15,563	16,256	101,593	7.1
April 1	19,232	10,479	13,832	8,827	15,145	15,153	16,554	99,222	4.5
May 1	19,959	10,968	14,737	8,742	15,527	15,702	16,654	102,289	6.3
June 1	19,241	11,269	13,657	8,744	15,539	15,903	16,815	101,168	7.9
July 1	20,534	11,628	12,557	8,748	15,533	16,084	16,826	101,910	11.4
August 1	19,983	11,679	11,347	8,821	15,582	16,239	16,526	100,177	5.1
September 1	17,579	10,402	10,930	8,811	15,773	16,655	16,532	96,682	.2
October 1	17,494	10,279	12,931	8,800	15,771	18,736	16,637	100,648	3.9
November 1	17,564	10,020	13,408	8,868	15,785	17,383	16,551	99,579	1.6
December 1	17,449	9,935	14,656	8,913	15,781	17,178	16,537	100,449	.9
1903									
January 1	17,104	9,522	14,613	9,418	15,938	17,185	16,578	100,356	1.2

From these tables we see that the prices of breadstuffs rose steadily through 1901 until January, 1902, remained nearly constant until August, and then suddenly fell when the early wheat and corn crops began to come to market. Prices of meats rose steadily and rapidly, reaching the highest point in August, 1902, and then declined. Dairy and garden products fluctuated greatly in price, because of seasonal changes, but on the whole declined during these two years. A distinct decline is noticeable in other foodstuffs. Both clothing and metals rose somewhat, while the prices of miscellaneous articles included in the tables remained practically stationary after the slight rise at the beginning of 1901. A comparison of the totals shows a decided upward movement of prices through 1901, and a remarkably steady high-price level throughout 1902. This high-price level is explained by the short wheat and corn crops in 1901, causing the rise in price of breadstuffs; the scarcity of live stock explains the high price of meat. The advance in the prices of clothing and metals was due to heavy demand and advance in the prices of raw materials. A comparison of the average price levels of the two years shows that prices were on the average 4.7 per cent. higher in 1902 than in 1901. The slight decline in prices during December is remarkable, since the advancing season produced a higher price level in every preceding year. It may be doubted whether the index number gives sufficient weight to the advance in the price of coal, which at this season of the year is a prime necessity, the dearth of which caused great suffering. Besides wholesale prices never indicate the real advance in the cost of living, for the advance in retail prices is invariably greater in proportion than the advance in wholesale prices.

PRIMITIVE METHODIST CHURCH OF AMERICA, a denomination which was introduced into the United States from Canada, having been instituted in England by Wesleyan Methodists who advocated camp meetings as one of the religious activities of that church. It now has 6520 members, 72 ministers, and 100 churches, with property valued at $279,843; and 94 Sunday schools attended by 11,368 scholars. The most noteworthy event in the history of 1902 was the approach toward union between the Methodist Protestant and the Primitive Methodist churches, a basis for federation having been decided upon at a meeting of committees from both denominations, held in the early part of August in New York City. The overtures were made by the Methodist Protestant Church through Dr. D. S. Stephens, the president of its general conference; and the proposed terms of union soon will be laid before the two churches for a decisive vote. The Primitive Methodists maintain a publishing house in Fall River, Mass., and are represented officially by the *Primitive Methodist Journal.* The next general conference of the church will meet in 1905, at Newcastle, Pa.

PRINCE EDWARD ISLAND, a province of the Dominion of Canada, with an area of 2000 square miles, and a population, according to the census of 1901 of 103,259 as against 109,078 in 1891. Capital, Charlottetown; population, 12,080 in 1901. The number of public schools in 1901 was 474, with a total enrollment of 20,779, as compared with 21,289 in 1900. The total expenditure for education in 1901 was $164,935.

Government, Industries, and Finance.—The province is administered by a lieutenant-governor, assisted by a responsible ministry. The legislative assembly has 30 members, elected by a popular vote. The province is represented by 4 members in the Dominion senate, and 4 in the House of Commons. The revenue and expenditure for 1901 were $309,445 and $335,632, respectively. The total liabili-

ties of the province on December 31, 1901, were $642,177. The trade for the fiscal year 1902 was an increase as compared with 1901, the exports being $801,013 as compared with $681,403 for 1901, and the imports $643,829, as compared with $526,617 for 1901. Much excitement was caused in June by what was supposed to be a sulphur shower on the island. All the pools, ponds, and rivers were covered. At first it was believed that the yellow dust had been carried from Martinique or St. Vincent after the volcanic eruption, but London papers, reporting similar showers in England in June, declared that microscopical examination showed the dust to be pollen of pine trees. Much dissatisfaction was expressed, notably by Hon. Arthur Peters, premier, over the reduction of the island's representation from 5 to 4 in the Dominion House of Commons. This was caused by the decrease in population and the provisions of the British North America Act applying thereto.

PRINCETON UNIVERSITY, founded 1746 at Princeton, N. J. At the commencement season in June, President Francis L. Patton resigned, to the great surprise of students and all friends of the university. Dr. Patton graduated from Princeton in 1865, and became president in 1888, after an incumbency of seven years in the chair of philosophy at Princeton Seminary. He resigned to resume the work of teaching in the seminary, and also to continue his religious and theological writings. Dr. Woodrow Wilson, professor of jurisprudence and political economy since 1891, was immediately elected to the presidency. President Wilson graduated at Princeton in 1875, and during his professorship has been very popular with the students. He is the first layman to be elected to the presidency of the university. On October 25 President Wilson was inaugurated, delivering an address on the "New Humanism" which attracted much favorable comment. While it is too soon after the change in administration to announce any change in policy, the institution has signified its adherence to the old collegiate course and to the policy of university expansion. No notable additions to the university funds were made during the year. One new building, Little Hall, has been added to its physical equipment. The more important additions to the teaching staff are as follows: George Stevenson Patten, professor of moral philosophy; Howard Crosby Warren, professor of experimental psychology; Edmund Yard Robbins, professor of Latin; Thomas Marc Parrott, professor of physics. The teaching staff now numbers 101. The student registration was 1354, divided as follows: College, 760; school of science, 477; graduate school, 117. The registration in November for the year 1902-03 was 1345.

PRIVATE BANKS. The following table, prepared from reports made by the comptroller of the currency, approximating to June 30, gives statistics of the total number of private banks in 1901 and 1902:

States and Territories and Reserve Cities.	Number of Banks.		Deposits.		Total Resources.	
	1901	1902	1901	1902	1901	1902
EASTERN STATES.						
New York	14	14	$1,834,229	$2,611,884	$2,304,195	$3,035,199
Pennsylvania	28	23	7,670,373	7,424,020	9,495,590	8,942,265
Maryland	9	5	941,277	628,892	1,751,510	929,904
Total	51	42	$10,445,879	$10,664,796	$13,551,295	$12,907,368
SOUTHERN STATES.						
North Carolina	17	21	$874,618	$925,374	$1,581,755	$1,400,031
Georgia	7	6	337,475	207,704	693,695	349,640
Alabama	.....	5	.....	712,293	.....	1,007,173
Texas	5	30	705,584	4,063,611	958,425	7,486,010
Arkansas	33	3	4,487,728	261,454	6,352,728	335,337
Kentucky	3	22	291,853	3,233,670	363,604	4,230,555
Total	65	87	$6,698,258	$9,404,106	$9,950,207	$14,808,746
MIDDLE STATES.						
Ohio	92	91	$22,649,205	$20,246,518	$25,826,062	$26,471,967
Indiana	69	68	7,955,906	9,691,733	9,994,878	11,961,626
Illinois	157	178	16,297,995	23,174,163	20,128,489	28,154,097
Michigan	55	53	4,342,084	5,204,289	5,249,959	6,188,652
Wisconsin	138	137	11,679,996	11,503,060	13,579,611	13,340,796
Minnesota	49	58	3,450,402	4,428,038	4,572,369	5,725,233
Iowa	152	157	15,098,305	17,536,235	19,791,819	22,002,352
Missouri	24	46	7,621,699	7,647,659	10,649,378	10,635,087
Total	736	788	$89,095,592	$99,430,695	$109,802,585	$124,479,810

States and Territories and Reserve Cities.	Number of Banks.		Deposits.		Total Resources.	
	1901	1902	1901	1902	1901	1902
WESTERN STATES.						
Kansas	.....	41	.....	$3,391,514	.....	$4,292,122
Wyoming	9	10	$1,171,810	1,413,232	$1,434,721	1,665,806
Colorado	17	17	3,220,563	981,312	3,914,166	1,270,571
Indian Territory	5	20	166,172	495,810	273,892	865,335
Total	31	88	$4,558,545	$6,281,868	$5,622,779	$8,093,834
PACIFIC STATES.						
Washington	4	3	$4,496,220	$350,980	$4,799,448	$386,453
Oregon	2	5	165,567	356,701	275,477	431,582
California	21	20	1,755,270	1,834,599	2,976,474	3,008,379
Idaho	3	2	153,700	147,187	191,589	186,789
Nevada	1	1	49,408	69,387	74,529	94,666
Alaska	2	1	338,758	193,240	424,738	248,908
Total	33	32	$6,958,923	$2,952,094	$8,742,255	$4,356,772
Hawaii	1	2	869,706	2,936,389	1,435,225	4,717,905
Total United States, etc.	917	1,039	$118,621,903	$131,669,948	$149,104,346	$169,364,435

PROFESSIONAL SCHOOLS. The following table shows statistics of professional schools in the United States in the year 1900-01:

Class of Schools.	Schools.	Students.	Increase (+) or Decrease (—).	Students Having A. B. or B. S. Degree.	Value of Grounds and Buildings.	Endowment Funds.	Income.
Theological	150	a7,567	— 442	2,160	$15,217,164	$21,165,174	$1,095,095
Law	100	b13,642	+ 1,126	2,119	1,875,000	1,151,920	508,694
Medical	154	26,757	+ 1,544	2,473	14,472,635	2,048,182	1,356,600
Dental	57	8,308	+ 380	108	1,213,122	.....	363,068
Pharmaceutical	58	4,429	+ 387	58	836,442	23,726	118,934
Veterinary	12	461	+ 99	29	270,500	.....	49,750
Nurse training	448	11,599	+ 435	.....	96,188,818	18,967,377	.....

a181 of these were women. b170 of these were women.

The following table shows by States and divisions of States the total number of students in 1901 in the three main classes of professional schools:

State or Territory.	Theological Students	Law Students	Medical Students
United States	7,567	13,642	26,757
North Atlantic Division	2,999	4,492	6,359
South Atlantic Division	974	2,109	3,361
South Central Division	566	794	4,660
North Central Division	2,938	5,720	11,178
Western Division	90	527	1,199
North Atlantic Division:			
Maine	45	39	123
New Hampshire	.....	.....	118
Vermont	.....	.....	155
Massachusetts	496	1,226	1,138
Rhode Island	.....	31	.....
Connecticut	163	213	133
New York	962	2,363	2,196
New Jersey	424	.....	.....
Pennsylvania	909	620	2,496
South Atlantic Division:			
Delaware	.....	.....	.....
Maryland	500	322	1,497
District of Columbia	124	1,102	544
Virginia	164	299	597
West Virginia	.....	115	.....
North Carolina	41	156	175
South Carolina	43	29	94
Georgia	102	86	454
Florida	.....	.....	.....
South Central Division:			
Kentucky	281	82	1,259
Tennessee	212	316	2,096
Alabama	64	57	214
Mississippi	.....	68	.....
Louisiana	9	78	425
Texas	.....	172	426
Arkansas	.....	21	240
Oklahoma	.....	.....	.....
Indian Territory	.....	.....	.....
North Central Division:			
Ohio	410	834	1,406
Indiana	111	577	415
Illinois	1,162	1,086	3,579
Michigan	87	988	1,138
Wisconsin	182	304	276
Minnesota	304	508	492
Iowa	188	482	706
Missouri	433	600	2,580
North Dakota	.....	.....	.....
South Dakota	.....	.....	.....
Nebraska	17	199	358
Kansas	44	142	228
Western Division:			
Montana	.....	.....	.....
Wyoming	.....	.....	.....
Colorado	3	98	240
New Mexico	.....	.....	.....
Arizona	.....	.....	.....
Utah	.....	.....	.....
Nevada	.....	.....	.....
Idaho	.....	.....	.....
Washington	.....	57	.....
Oregon	31	50	89
California	56	322	870

PROTESTANT EPISCOPAL CHURCH, a member of the Anglican communion, traces its descent through colonial churches to the Church of England. It now comprises 60 dioceses and 21 missionary districts within the United States and its possessions, besides missionary districts in foreign lands. There are 91 bishops of the church, 9 having been consecrated in the year 1902: Frederick W. Keator, D.D., of Olympia; Frederick Burgess, D.D., of Long Island; James A. Ingle, of Hankow, China; Alexander H. Vinton, D.D., of Western Massachusetts; Alexander Mackay-Smith, D.D., coadjutor-bishop of Pennsylvania; Charles S. Olmsted, D.D., of Colorado; James H. Van Buren, D.D., of Porto Rico; Henry B. Restarick, of Honolulu; and Charles T. Olmsted, D.D., bishop coadjutor of central New York. Charles M. Beckwith, D.D., and Sheldon M. Griswold, D.D., were elected bishops of Alabama and Salina, respectively. Notable losses in the episcopate were sustained in the deaths of Bishops Robert W. Barnwell, D.D., of Alabama; John F. Spalding, D.D., of Colorado; Hugh M. Thompson, D.D., LL.D., of Mississippi, and Francis M. Whittle, D.D., LL.D., of Virginia. Rt. Rev. Robert A. Gibson, D.D., succeeded Bishop Whittle in the diocese of Virginia. The Protestant Episcopal Church has 6793 parishes and missions, 6062 church edifices, and 756,765 communicants. The clergy number 4950. In the Sunday schools are enrolled 47,309 teachers and 430,961 scholars. Total contributions for 1902 were $15,043,586. The diocese of Honolulu was transferred from the care of the Anglican Church to the American Church, Bishop Willis having finally presented his resignation, to take effect April 1, 1902. When Hawaii was annexed to the United States, it seemed natural that the Episcopal Church should pass to the jurisdiction of the Protestant Episcopal Church, but the Anglican bishop protested against the transfer, and it was only after a conference at the last general convention (1901) that Bishop Willis consented to resign. A significant movement during the year 1902 was that toward union, on the basis of the Lambeth quadrilateral, between the Episcopal and Polish Old Catholic churches. Bishop Anthony Kozlowski, of the latter, representing a body of 42,850 communicants, with 43 churches and 33 ministers, applied for recognition, and a committee on terms of intercommunion was appointed by the house of bishops. Missionary activities, too, occupied a prominent place in the history of the year. The apportionment plan that was tried resulted in an increase in receipts of $100,000. It was proposed to raise $1,000,000 for work in the Philippines, the movement being in behalf of educational and other improvement, as well as on denominational lines. Liberal contributions already have been received. A largely attended missionary council was held in Philadelphia in October; and the Advent season in New York City and vicinity was marked by a noteworthy series of revivals in the interests of foreign missions.

The twenty-first church congress in Albany (October) was devoted to a discussion of various topics on the relation of Christianity to social life. Other matters of interest during 1902 were the discussions on the advance of ritualism in the church, and on the change of its legal name. Besides the deaths in the episcopate, that of Eugene A. Hoffman, D.D., D.C.L., dean of the General Theological Seminary, was a great loss to the church. The next general convention (1904) will be held in Boston.

PRUSSIA, a kingdom constituting the largest and most important state of the German empire. See GERMANY.

PSYCHICAL RESEARCH, SOCIETY FOR, founded in England in 1882 for the study of supernormal psychical and physical phenomena, had in 1902 about 900 members. The president was Oliver Lodge, LL.D., F.R.S. There is an American branch of the society, founded in 1895, having in 1902 about 500 members. Secretary of the English society, J. G. Piddington, Esq., 87 Sloan Street, London, S.W.; secretary of the American branch, Dr. Richard Hodgson, 5 Boylston Place, Boston, Mass. The society publishes *Proceedings* (parts xliii. and xliv. in 1902), and a monthly *Journal.* Part xliii. of the *Proceedings* contains the address of the president, Dr. Lodge, discussing general questions of trance lucidity and clairvoyance with the strange physical phenomena that sometimes accompany trance. He insists that while the telepathic hypothesis of trance phenomena is based upon well recognized facts of telepathy, it fails to account for all the facts revealed in trances, and that while there is yet no universally accepted proof that disembodied spirits exist and communicate with living persons, there is yet no *a priori* reason why such a thing is impossible. Dr. Lodge approves of the conception of the subliminal consciousness introduced into psychology by the late F. W. H. Myers in its present form. Part xliv. of the *Proceedings* contains a number of reports upon the trances of Mrs. Thompson, an English medium. They are here first published and are by Dr. F. van Eeden, the Dutch psychologist (seven sittings); by J. O. Wilson (pseudonym) (two sittings); by Dr. Richard Hodgson, secretary of the American branch of the society, who conducted the sittings with the American medium, Mrs. Leonora Piper (six sittings), and by Mrs. A. W. Verrall (twenty-two sittings).

Mrs. Thompson is an English lady, the wife of Edmond Thompson, of Hampstead, London, N. W. From early youth she has observed in herself unusual psychical phenomena, although it was not until 1896 that she realized her power of exhibiting the peculiar manifestations of the trance medium. She is described as a woman in other respects entirely normal, "an active, vigorous and practical person, interested in her household and in her children, and in the ordinary amusements of young English ladies, as bicycling and the theatre. She is not of morbid nor even of specially reflective or religious temperament. No one would think of her as the possessor of supernormal gifts." Unlike the American medium, Mrs. Piper, in whose case a large proportion of the communications are written, it is stated that she sees spirits life size, hears voices, sees words (printed), sees visions in crystal balls, sometimes writes automatically even in the waking state; the customary mode of communication in her case, however, being by means of speech in trance. Since 1898, under the direction of the late F. W. H. Myers and J. G. Piddington, secretary of the English society, she has given repeated evidences of an extraordinary knowledge of events known in some cases only to the so-called sitter. The Society for Psychical Research in 1902 began circulation of a questionnaire as to the "Human Sentiment with Regard to a Future Life." The questions are as follows: I. Would you prefer (a) to live after death, or (b) not? II. (a) If I. (a) do you desire a future life whatever the conditions might be? (b) If not, what would have to be its character to make the prospect seem tolerable? Would you not, e.g. be content with a life more or less like your present life? (c) Can you say what elements in life, if any, are felt by you to call for its perpetuity? III. Can you state *why* you feel in this way, as regards I. and II.? IV. Do you NOW feel the question of a future life to be of urgent importance to your mental comfort? V. Have your feelings on questions I., II., and IV. undergone change? If so, when and in what ways? VI. (a) Would you like to know for certain about the future life, or (b) would you prefer to leave it a matter of faith?

PSYCHOLOGICAL ASSOCIATION, AMERICAN, a society of psychologists, founded in 1892, had, in 1902, a membership of 135. President in 1902, Prof. E. C. Sanford, of Clark University; secretary, Dr. Livingston Farrand, of Columbia. The meeting for 1902 was held at Washington, D. C., December 30, 1902, to January 1, 1903. The society is affiliated with the American Association for the Advancement of Science, and is represented by a delegate in that body. The society through a committee commenced in 1902 the compilation of a psychological bibliography. The following papers were read: *Psychology and Physics,* by Prof. E. C. Sanford of Clark University; *The Psychology of Weather Influence,* by Edwin G. Dexter, in which he showed that children are more influenced by the weather than adults, and that women are more affected by meteorological conditions than are men; *The Development of Memory in School Children,* in which the author reported that the memory for colors on the part of the children studied by him was the best developed, and that next in order came concrete words, then words arousing imagery of the sense of touch, then emotion words; *The Position of Psychology in the System of Knowledge,* by Prof. Hugo Münsterberg of Harvard, and other papers of more technical nature. Prof. William L. Bryan of Indiana University was elected president for 1903.

PSYCHOLOGY, EXPERIMENTAL. "A psychological experiment consists of an introspection or a series of introspections made under standard conditions" (Titchener). For such standard conditions the instruments vary in complexity and cost from simple pencil and paper to the richly equipped laboratory with its intricate internal arrangement and its complicated electrical devices often invented and manufactured in the laboratory itself for a single experiment. Psychological experiments are now conducted, and their results published, at about thirty-five institutions of learning in the United States and Canada, of which the more prominent have been selected for special mention in the preceding volumes of the YEAR BOOK. In Europe much is being done in the different lines of research in Germany, France, Switzerland, and Italy, though comparatively little in England. Of the results of work in experimental psychology published in 1902 the below-mentioned are selected as being of general practical interest. Other researches of importance are those of Schmidt on association and Wiersma on the fluctuation of the attention (both in the *Zeitschrift für Psychologie,* vol. xxviii.). Laboratories in the United States not specially mentioned below, in which research work is done in psychology, are those of Bellevue Medical School, Brown University, Bryn Mawr College, Chicago University, Colorado University, Harvard University, Indiana University, Leland Stanford, Jr., University, McGill University, universities of Minnesota and Missouri, Mt. Holyoke College, University of Nebraska, New York University, University of Pennsylvania, Princeton University, Psychopathological Laboratory of New York City, Smith College, Toronto University, United States Bureau of Education, Vassar College,

Wellesley College, Wells College, Wesleyan University, and the University of Wisconsin.

Dr. Sante de Sanctis and Dr. U. Neyroz, of the University of Rome, investigated, by means of sensations of touch, the depth of sleep of four normal and five abnormal persons of different ages. The experiments were carried on for six months, one or two a night, but at different hours on successive nights for the same subject. Many hundreds of tests were taken, the experimenter entering with a dark lantern and placing the blunt points of an æsthesiometer upon the upper left part of the forehead. The time of the first unconscious movement of the sleeper was noted and the time at which, after being pressed with increasing intensity, he finally awoke, and thus it was possible to tell just when the sleep is deepest. A record was kept also of the occurrence of dreams. The results of these experiments may be summed up as follows: Sleep is deepest, both for normal and for abnormal persons in the first half of the second hour of sleep, when it becomes lighter until a greater depth is again reached; though in the normal subjects not so great as the first depth. With all of the pathological subjects the depth of sleep is far greater than with the normal subjects. In two abnormal subjects the depth was as much as twice that of normal subjects, i.e. it took twice as much pressure on the æsthesiometer to waken them thoroughly. It was found that sleep was the deepest in the oldest epileptic and the one who had been longest an invalid. There is a much greater uniformity in the depth of sleep among the normal than in the abnormal subjects. Dreams occur in every period of sleep, but they are more frequent and more vivid in the later hours of the night, particularly towards morning. The modifying influence of external stimuli on the course of dreams was several times noted.

M. Ch. Féré presents a study in the *Année Psychologique* on the *Influence of Rhythm on Work*. He used Mosso's ergograph, raising a weight of three kilograms with each contraction. He found that the movements of the middle finger, with which the work is done on the Mosso ergograph, were excited to greater amplitude and force if the subject heard at the instant he contracted his muscles the blow of a hammer upon a table or the tone of a triangle. This, however, hastened the fatigue. Working slowly increases the amount of work done, and gradually decreasing the speed of the contractions increases the amount of work done in proportion to the amount of the decrease. Thus, contracting the middle finger of the right hand every second and then, after ten contractions, doing it only thirty times a minute, gives an appreciably greater amount of work than going from ten contractions at the rate of sixty a minute to contractions at the rate of fifty a minute. A change of rhythm produces a slight depression in the amount of work done by the right hand, but a much greater depression in the amount done by the left hand. Grouping the movements with pauses at rhythmical intervals seems to help the attention and increase the work done to a degree sometimes more than making up for the loss of time. Other experiments, on the alternation of right and left hand work, combined with visual stimuli, were such as to show the reality of the so-called cross education of the cerebral hemispheres.

M. V. Henri in an article in the *Année Psychologique* reviews a great number of researches on memory published by psychologists in Europe and America and deduces the general law that the memory of any complex impression is the better the greater the number of partial memories brought into play by this impression. "Partial memories" is used for associated presentations, in other sense elements, accompanying the main or typical memory image. For instance, when we use the word "bell" we may mentally see the bell with a definite shape and color, or we may mentally hear the bell, or we may mentally touch it. Any one of these forms of the idea may be uppermost in our minds at any one time, and at that time the others, if present, would constitute the partial memories. M. Henri states the following two problems, among others, not yet solved: (1) Is it possible to discover in the case of any given subject just what partial memories are below the normal in development, and what are above, and (2) can these partial memories be effectively trained?

Clark University.—Mr. A. J. Kinnaman reports a research upon the *Mental Life of Rhesus Monkeys in Captivity*. He experimented with two monkeys, a male and a female, of the Maccus Rhesus variety from India. They were chosen partly for the reason that they are somewhat familiarized with human environment, being the sacred monkey of India, protected by the superstitions of the country. The experiments consisted in putting food into a small box (11x13x15 inches) with a door having a spring which caused it to fly open when unfastened. Seventeen different kinds of fastenings were used—as hook, latch, bolt, button, etc.—the manipulation of all of which was learned by the monkeys. Experiments were also made to see whether the monkeys would learn to form associations between certain arbitrary signs and the getting of food. Food was presented to them in receptacles of different shapes of the same capacity, and again of the same shape, but of different capacities.

At other times, receptacles of different colors, and shades of the same color were used. These tests showed that monkeys can perceive colors, and that two colors of a given difference of brightness are discriminated better than two grays of an equal difference of brightness and that differences of form and size are perceived. Mr. Kinnaman is not willing to believe that the monkeys reasoned in the higher sense of the term but have learned each task only after repeated failures and the gradual elimination of useless efforts. The female learned by imitating the male, where she failed to learn otherwise. They did, however, show an increasing ability to pick out the fastenings as the essential difficulty in opening the box. A curious and interesting test was made upon the monkeys for color preferences. They were placed one at a time in a cage which had before it sheets of colored gelatine; orange and blue sunlight was admitted through these sheets. The male spent 62 per cent. of his time in the blue light, while the female spent the larger part of hers in the orange.

Mr. Chas. H. Sears contributes a study on the psychology of rhythm of interest to musicians. He measured the records of the absolute times taken up by the notes of five hymns which were played by four church organists upon a reed organ. He found variations in the times consumed by the different musicians and by the same musician playing the same tune on different occasions. Thus, one tune was played by one organist in 23.57 seconds while it took another 31.33 seconds to play the same succession of notes. It is naturally inferrable from this that the individual measures varied in duration, and this was found to be the case. This individual difference is not, however, so important or so striking as that between the lengths of note of the same kind when played by the same musician in the same piece of music or even in the same measure. Thus, one organist produced half notes varying in duration from .66 to .83 second. The quarter notes did not measure half the length of the half notes, and other variations were noticed in notes of other values, e.g., sixteenth notes varied in length from .10 to .16 second. This irregularity has been previously recorded in the case of eminent musicians whose performances were minutely studied by Binet and Courtier. From his experiments, which have not before been published, Mr. Sears finds: There is a tendency to play a selection more slowly a second time than the first. The irregularity in length of measures does not in the selections used by him average more than .1 second. A marked tendency was observed in the direction of lengthening notes upon which the musical accent falls. In some cases, though the musicians were playing in what is known as the legato style, there was an interval between two successive tones even when they were on different degrees of the scale. The interval is usually the result of the shortening of the preceding tone. When successive notes are on different degrees of the scale there is frequently an overlapping, i.e., the later tone begins before the earlier has stopped. These overlappings show great variations in length, and that independently of the absolute duration of the tone. Thus, a very short note may overlap its predecessor and itself be overlapped by its successor to such a degree that it sounds alone for only one-fifth of its total length, without destroying the æsthetic effect of the music. These results are true both when the air or soprano voice of the selection is played alone, and when all parts are played. In the latter case, however, Mr. Sears's results do not corroborate the statement of a German psychologist, Meumann, who suggested that when a performer uses both hands the one helps the other to achieve a greater regularity and correctness in rhythm. An interesting fact was noted by Mr. Sears in that the notes of a Swiss music box, when accurately measured showed variations in the absolute time of notes of the same denomination.

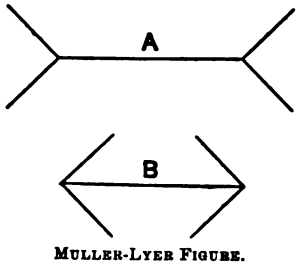
Columbia University.—Mr. J. Hershey Bair, from the results of experiments upon learning arbitrary series of reactions upon a typewriter and from other motor mental activities, deduces the following conclusions (*The Practice Curve,* Monograph supplement of *Psychological Review,* No. 19, November, 1902): In practicing a series of responses with a series of stimuli until they become automatic, when the time is kept constant by means of a metronome the decrease in the number of errors follows the law of the practice curve. The greater the number of possible reactions the slower the rate of adjustment and the later the time at which no errors will be made. There are less errors made and it takes fewer practices to eliminate them at the slower rates than at the faster. This last statement is of much interest with regard to the teaching of music, for it gives scientific proof of a theory for some time held by instructors that it is better to practice a piece of music at a slow tempo. Mr. Bair's results showed also that when one series of reactions has been learned perfectly, so that it can be performed without error, a new series can be learned in a shorter time than was the first. Mr. Bair interprets his results as proving that special training increases general ability, a doctrine which has been a subject of some controversy in psychology.

Cornell University.—Miss Florence W. Bagley made a study of the so-called Fechner's Colors, an interesting and peculiar visual phenomenon. If the eye be

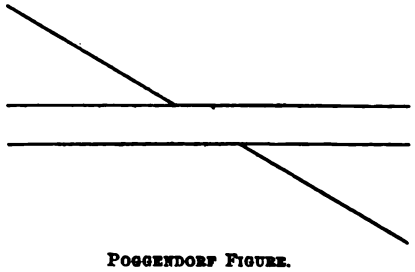
stimulated by black and white surfaces in alternation, at such a rate that there is a flickering, there results a sensation of color, blue, green, yellow, and red according to the quantity and shape of the black and white surfaces used. Miss Bagley devised a large number of disks which were rotated for her studies at a rate of 4.3 times a second. The disk shown in the cut is an example of one type of the ninety-eight different disks used. Thirty-eight were black and white; the others had colored backgrounds instead of white. A curious fact about the phenomenon is that if the disk is rotated in the direction that produces red in the centre and blue near the circumference, the relative positions of these colors change place when the disk is rotated in the opposite direction. Helmholtz explained the phenomenon on the assumption that different rates of excitation of the retina produce different colors and that a certain amount of fatigue was necessary for the perception of the colors—an explanation, however, that seems inconsistent with the facts as observed in these experiments.

University of California.—Prof. George M. Stratton contributes two studies on *Visible Motion and the Space Threshold.* The "threshold" is the least noticeable difference between two sensations of like kind; in touch and sight it is that point where two stimuli are so near in space or time as to be perceived as but one. It has long been known, however, that a very slight motion of objects below the threshold will cause them to be at once discriminated. This fact was taken by James (*Principles of Psychology*, vol. ii., p. 172) as a proof that movement is a primitive form of sensibility and that the sense of movement cannot be derived from the sense of position. Professor Stratton's experiment was concerned with the evidence for this position, using lights as stimuli for indirect vision and a white line for direct vision. In the experiment upon direct vision it was necessary to avoid the difficulties in the measurement of very small angles encountered by previous experimenters who had been obliged to use a microscope, and for this purpose he placed his subject at a distance of nearly 400 feet from the stimulus. It was then possible for the subject to use the naked eye, as a line of the length used, 50 centimetres (about 19½ inches), subtends at this distance an angle of about 18′ of arc, a little more than a quarter of a degree; and it was possible to measure accurately motions of an amplitude so small as 5″ of arc. Both sets of experiments—upon direct and upon indirect vision—agree in showing that "the doctrine that visual motion is a primitive form of sensibility independent of local discrimination finds no experimental warrant. The perception of motion seems to be nothing more nor less than the perception that a sensation is changing its space relations, the motion itself furnishing a decidedly favorable, but by no means unique set of conditions for appreciating such differences of space relationship."

Miss Alice Robertson at the University of California made a number of experiments on "Geometric-Optical Illusions in Touch." She used among others the Müller-Lyer figure (a straight line with angles at the ends) and the Poggendorf



MULLER-LYER FIGURE.



POGGENDORF FIGURE.

figure (parallel lines intersected by another at an acute angle, the part between the parallels being taken away). Her experiments consisted in passing the finger tips lightly over a pasteboard on which the different figures had been placed in raised lines, and she found that the Müller-Lyer figure produced the same illusion in the

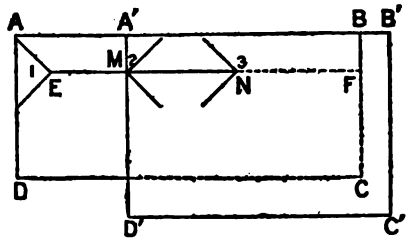
sense of touch that it has for the sense of sight, even with people who have never seen the figure; but the Poggendorf figure created in the sense of touch a false idea, of a nature opposite to that caused by the figure when seen. Thus in the Poggendorf figure, when the parallels are vertical and the oblique line goes from the right hand upper down to the left hand lower corner of the figure, the part of the line to the right of the parallels is always thought to be too high up to be in the same straight line with the other part of the intersecting line. But when the figure is made with lines slightly raised so as to be perceptible to the sense of touch at the finger tips, the right hand part of the line seems too low. No explanation is given for this tactual reversal of the optical illusion, but it is taken as a proof that the current explanations of the visual illusion with the same figure are invalid.

At the University of California Miss M. L. Nelson studied the "Effect of Subdivisions on the Visual Estimate of Time" (*Psychological Review*, September, 1902). Mental estimates of small intervals of time vary according to the character of the stimuli—touch, sight, or hearing—giving the test period (as when a tap on the hand or a click marks the beginning of the period and another its end); and they also vary according to (i.e. mentally measure another of the same duration) whether or not the stimuli above mentioned are repeated at regular intervals during this period. The estimate is measured by the subject's ability to reduplicate the test period. Miss Nelson tried to find out what effect there would be on the mental estimate with visual stimulus—a flash of light—when the time limited by these flashes was "filled" by flashes of the same nature at regular intervals. The results showed that an empty time interval used as a standard seemed shorter than the time filled by regularly repeated flashes and that the filled time seemed longer the greater was the number of flashes contained.

University of Chicago.—Mr. J. Haywood Pearce, at the University of Chicago, conducted a research upon "Normal Motor Suggestibility" (*Psychological Review*, July, 1902). Mr. Pearce's experiments were made with tactual, auditory, and visual stimuli, their common principle being a demand upon the subject to localize either the place or direction of the given stimulus in a set field. Variations in the spatial relations of like stimuli were the basis of the suggestion, and Mr. Pearce's conclusions are based upon certain peculiar tendencies to follow or contradict these variations in the subject's response. He states them as follows:

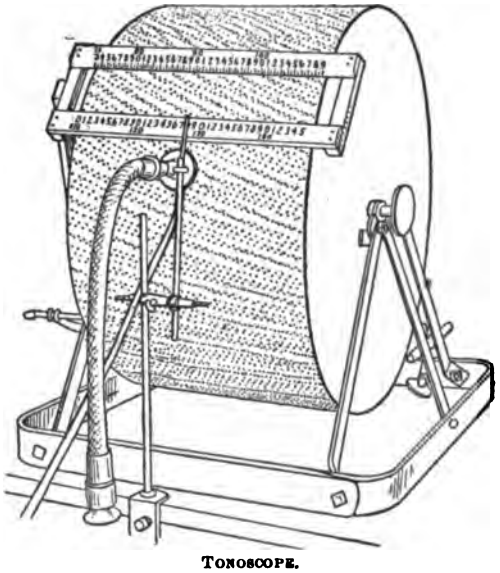
"(1) In localizing a single stimulus whether tactual, inauditory, or visual, an error is ordinarily made in the direction of the point upon which attention is directed when the stimulus is given. This error notably increases with the distance of the stimulus from the point of attention. (2) When a second stimulus of like character to the first is given there is at first manifest a tendency to resist the suggestion thereby offered. But this tendency is diminished as the suggestion is repeated, and ultimately the suggestion becomes fully effective, causing the subject to err in the direction of the second stimulus. (3) The resistance or the contradictory tendency is most vigorous when the suggestion is made in a direction opposed to the normal tendency to error; but ultimately a suggestion opposed to a normal tendency is more effective than in the reverse case. (4) Variation of intensity and distance of second stimulus within certain limits is followed by a corresponding variation in effect produced. The first effect, however, of any change in the method is to produce vacillating and contradictory results."

University of Cincinnati.—Prof. Chas. H. Judd of the University of Cincinnati, made a series of measurements of the varying degrees (diminishing according to practice) of the visual illusion caused by the so-called Müller-Lyer figure. Professor Judd took a card with that form of the Müller-Lyer figure on the edge of it which has the angles pointing away from each other. On another card he had a line of indefinite length with (at one end of it) an angle pointing towards the line. The first card was placed on top of the second in such a way that the straight line of the first was superimposed upon that of the second. Then the first card was shifted to the right or to the left until the two lines terminated by the three angles appeared to be equal in length (see cut). The first time this is tried, if the card underneath is held to the left and the line on the upper card (between the two angles that point away from each other) is about two inches long, the portion of the line of indefinite length that is thought to be equal to the other will be found to be more than a quarter of an inch shorter than the other. Professor Judd found that this illusion, after about 1000 attempts, disappeared. Professor Judd calls attention to the fact that the judgment, or thought in abstract



terms, about the illusion seems to have nothing to do with its final disappearance. He says: "If it is true that in a limited series of experiments a change so marked as this may take place without leaving in direct consciousness a single trace of the process by which the change was effected, then, certainly, we must hesitate in adopting any explanation of mental development which is based on the assumption that the later stages of mental life are different from the earlier stages only in a quantitative way. The whole genetic problem is seen to be a problem requiring methods which reach beyond introspection, and requiring, furthermore, a careful scrutiny of the qualitative aspects of the changes effected through development."

University of Iowa.—Prof. C. E. Seashore of the University of Iowa has invented an instrument called a tonoscope for rendering visible the sound vibrations of the human voice or other musical tone, and at the same time counting them. The instrument consists of a revolving drum, with rows of dots around the edge of it, each row in a different plane perpendicular to the axis. The rows have different numbers of dots in them, from 73 to 145. When the drum revolves once a second, therefore, 73 or any number of dots up to 145, pass a given point in a second. The connection between these dots and a musical tone is as follows. A tuning fork is set in motion by an electro-magnet making, for example, 100 vibrations a second. The hundred backward and forward movements of this fork are used to break and make an electric current; and this hundred times broken current produces in a little instrument known to physics as a Geissler tube 100 flashes, which cause 100 separate illuminations of the drum, used in a dark room for this purpose. These flashes render the 100-dot line apparently stationary, the dots being seen clearly, while all the other lines of dots are blurred. This will be easily comprehended when it is reflected that if the eyes could be opened and shut 100 times a second and every time they were closed the line of dots moved along a distance equal to a hundredth of the circumference of the drum, the motion of the dots could not be detected. In the instrument now being described the flashes of the Geissler tube take the place of this impossibly rapid opening and shutting of the eyes. The tuning fork also by the tone it makes, serves as a standard or model to be imitated by the singer. The tone of the singer is conveyed to the drum by a speaking tube, and, near the drum, is, as it were, translated into light by means of what is known as a manometric capsule. The capsule is constructed in such a way as to make a gas flame flicker once for every sound vibration of the tone sung into the speaking tube, making an effect similar to the flashes of the Geissler tube. Now, if the person hearing the tone of the fork can imitate it exactly, the tone he sings into the speaking tube will cause in a second of time 100 flickerings of the gas flame in the manometric capsule, which in turn will make the 100-dot line on the drum appear to stand still. The two flickering lights, that from the Geissler tube and that from the manometric capsule, are placed on opposite sides of the drum so as not to inferfere with each other, the experimenter adjusts his fork to the tone he wishes, notes the number of vibrations as registered on the scale (shown in the cut only on the side where the capsule is) and then is ready to read the number of air vibrations made by the vocal cords of the singer. It may be noted here that if the number of vibrations is greater (e.g. 146) than the highest number on the scale (145) it will be twice (or four times, etc.) as great as some other number on the scale (e.g. 73) and 146 vibrations will make the line numbered 73 appear to stand still. It is thus seen that any line of dots on the drum may be made to look motionless by a tone of the corresponding number of vibrations or by its octave which has twice as many vibrations. The inventor of this instrument offers it as one that will be valuable in experimenting upon the motor side of mental phenomena, and points out that little work has been done in experimental psychology in the study of motor processes, particularly in the psychology of



TONOSCOPE.

music. Professor Seashore observes, as the results of preliminary experiments with the tonoscope, that sustained tones vary in pitch according to a general law, and that "there is a shocking surprise for every singer who tests his ability to sing even the simplest air in true pitch. He finds that his good ear has tolerated great license in the matter of fidelity to pitch" (*University of Iowa Studies in Psychology*, vol. iii., 1902).

University of Michigan.—From this university Mr. H. C. Stevens reported results of an investigation into the "Relation of the Fluctuations of the Judgments in the Estimation of Time Intervals to Vaso-Motor Waves" (*American Journal of Psychology*, January, 1902). It had been shown in 1900 that the fluctuation of attention was exactly paralleled by the so-called Traube-Hering vaso-motor waves. Mr. Stevens undertook by means of elaborate experiments extending over a long period of time to find the relation of the vaso-motor wave to the fluctuation of judgments of time intervals. His subjects were given at different stages in the experiments intervals of different lengths marked off by clicks of a Meumann time-sense machine. They then registered on a revolving drum, by means of a telegraph key, the beginning and end of an interval judged by them to be equal. Mr. Stevens found that with his six subjects, the shortest intervals (e.g. of four-tenths of a second) tend to be overestimated; intervals from seven-tenths of a second to two and four-tenths seconds are generally underestimated and that intervals from three and seven-tenths to seven and twenty-four-hundredths seconds are overestimated. He finds also that Weber's law does not hold for the estimation of time intervals, and that "there is no special time sense in consciousness; but our judgment of time is mediate, depending upon organic processes of which the changes in blood volume are one of the more important." He finds also that for intervals larger than three and seven-tenths seconds "the strain of respiration may afford to some subjects a means of estimating time intervals."

Yale University.—From the Yale psychological laboratory we have a study on the rhythm of speech by J. E. Wallace Wallin (New Haven, 1902). He investigated the qualities of human speech with the aid of a talking machine. A large number of persons read, recited, and sang into the machine, and the reproductions of their voices were studied by ear to determine the laws of emphasis and their operation in prose and poetry. It is necessary in an investigation of this kind to take into consideration three factors of the spoken word, the time or duration, the intensity or loudness of the sound and the pitch of the sound. The quality or timbre of the sound was not taken note of as it was assumed that the quality added little or nothing to the emphasis. All four factors are present in every tone, but it is impossible in the nature of the case to isolate any one of them. The emphasis of speech was regarded as a sentroid or combination of forces in which, however, the pitch or the duration or the intensity may be the most noticeable of the factors. Accurate measurements may easily be made from the records of the talking machines of the actual duration of the words of any passage. From such measurements Mr. Wallin corroborated the statement that syllables emphasized by increase of intensity or loudness are generally of longer duration than the others. To determine the comparative force or intensity of the syllables, however, it is necessary to hear them and judge by ear alone whether they are louder or less loud than the others in a phrase, in a line, or in a sentence. Examination of the records of the phonograph when the cylinder revolves slowly showed that between successive syllables there are silences, which fact contradicts the statements of phoneticians who maintain that syllables are continuous. The ratio of the length of the silence to the length of the syllable averages one to two and one-third. That almost one-half of our spoken words is made up of silence is an apparent paradox. The duration of separate sounds and silences was measured with accuracy both for prose and for poetry, and the intervals, both expiration or sound intervals, and vacant intervals, were studied with the following results. "The quantity of the sounds of expiration intervals of speech is nearly 2½ times greater than the quantity of the silences. The average emphatic and unemphatic syllables of speech are both uniformly longer than the average silences." The emphasis given to the different parts of speech was found to be in the following ratio. Nouns received the emphasis more frequently than any other part of speech. Then, in order of frequency, come verbs, adjectives, adverbs, conjunctions, prepositions, personal pronouns, proper nouns, and interjections. In poetry the average duration of the emphatic syllables was .19 second; while that of the unemphatic syllables was .11 second. A thorough discussion of the methods, previous researches, and results of study in the subject of spoken language is found in the large volume by Prof. E. W. Scripture, director of the Yale Psychological Laboratory, entitled *Experimental Phonetics* (New York, 1902).

Among the more important books on psychology as a whole or in part, that have appeared in 1902 in English, may be mentioned the following: Volume ii. of the *Dictionary of Philosophy and Psychology*, edited by J. Mark Baldwin; Oppenheim,

Mental Growth and Control; Baldwin, *Fragments in Philosophy and Science;* Witmer, *Analytical Psychology;* James, *Varieties of Religious Experience;* Baldwin, *Development and Evolution;* Scripture, *Elements of Experimental Phonetics;* Brooks, *The Elements of Mind;* Sturt, *Personal Idealism;* Spencer, *Facts and Comments;* Duff and Allen, *Psychic Research and Gospel Miracles;* Spiller, *The Mind of Man;* Savage, *Can Telepathy Explain?* Sully, *An Essay on Laughter.*

PUBLIC HEALTH. See HYGIENE and VITAL STATISTICS.

PUBLIC SCHOOLS. See EDUCATION IN THE UNITED STATES and SCHOOLS.

PYRITE. See MINERAL PRODUCTION.

PYTHIAS, KNIGHTS OF, a fraternal organization founded at Washington, D. C., in 1864. There are 54 grand lodges in the order, including those in British Columbia, and a total membership of 540,138. There is an endowment rank, or life insurance branch, in which there is a membership of 59,211, representing an endowment of $102,419,500. The conventions of the supreme lodge are held biennially, the last in San Francisco in August, 1902, and the next convention at Louisville, Ky., August, 1904, while the respective grand lodges hold their conventions independently, as may be agreed upon. Supreme chancellor, Tracy R. Bangs, Grand Forks, N. D.; supreme keeper of records and seal, R. L. C. White, Nashville, Tenn.

QUAKERS. See FRIENDS, SOCIETY OF.

QUEBEC, a province of the Dominion of Canada, has an area of 347,350 square miles. The population according to the census of 1901 was 1,648,898, against 1,488,535 in 1891—a larger absolute increase than in any other Canadian province, and a relative increase of a little less than 11 per cent. Capital, Quebec; population, 68,834 in 1901, as compared with 63,090 in 1891. The educational system is sectarian; that is, the schools are distinctively either Roman Catholic or Protestant. In 1901-02 there were 6643 teachers and 5245 elementary schools, with a total enrollment of 314,881 pupils, and the total expenditure for education was $3,251,714.

Government and Finance.—The province is administered by a lieutenant-governor assisted by a responsible ministry. The legislative council consists of 24 members appointed for life by the governor-general in council, the legislative assembly has 74 members elected for five years on a property qualification. Quebec has 24 Dominion senators and 65 members in the House of Commons. The revenue and expenditure for the fiscal year 1901 were $4,563,432 and $4,516,257 respectively, as compared with $4,451,578 and $4,433,386 in 1900.

Commerce.—The trade for the fiscal year 1902 exceeded that of the previous year, the total being $173,071,644, as compared with $170,256,899 for 1901. The exports were $91,057,201 as against $93,540,609 in 1901, and the imports were $82,014,443, as against $76,716,290 in 1901.

History.—The annual session of the legislature opened on February 13, 1902. The prosperity of the province was well maintained during 1902. Conservative opposition policy was restricted to attacks upon the government for its alleged remissness in securing increased subsidies from the Dominion, and to charges of provincial connivance with the Dominion government in regard to the Manitoba school question, which was declared to be still unsettled. During the year there were some outspoken though unimportant attacks upon British imperial policy, and the danger of involving the French Canadian population in foreign wars was pointed out. Leading French Canadians, however, disavowed the sentiments which appeared in certain journals publishing these attacks, and towards the close of the year a French Canadian cabinet minister at Ottawa, Hon. Mr. Prefontaine, in an interview, expressed the belief that his compatriots of Quebec would favor the building of a Canadian railway. Conferences of the provincial premiers of Canada convened for the main purpose of securing increased subsidies from the Dominion, were held during the year at Quebec, and it is practically assumed that increased subsidies will be granted. An influential railway syndicate of British and Canadian capitalists was formed at the city of Quebec to build another Canadian transcontinental line, the Trans-Canada Railway, crossing the continent north of the Canadian Pacific Railway and with a terminus on the Pacific Coast. On June 23 an immense gathering of French-Canadians from all parts of the continent celebrated at the city of Quebec the sixtieth anniversary of the St. Jean Baptiste Society. The parade was viewed by 75,000 people, of whom 25,000 were strangers. The development of water powers and the building of pulp mills and other manufacturing plants by American capital have noticeably increased during the year.

QUEENSLAND, a state of the Commonwealth of Australia, has an estimated area of 668,252 square miles, and a population, acording to the census of 1901, of 503,266, an increase over the census figures of 1891 of about 28 per cent. The capital is Brisbane, with a population (1901), including suburbs, of 119,428. Primary edu-

cation is free and nominally compulsory. The enrollment in 972 state schools in 1901 was 70,432, and in 169 private schools, 12,773.

Government and Finance.—The executive authority is vested in a governor appointed by the crown (Sir Herbert Charles Chermside, appointed 1902), and assisted by a cabinet of nine responsible heads of departments. The legislature consists of a council of 42 members appointed by the crown for life, and an elective assembly of 72 members. The state revenues for the fiscal year ending June 30, 1902, amounted to £3,535,000, as compared with £4,403,225 in 1900-01. The expenditures for the same period were £3,967,000, as compared with £4,958,806 in 1900-01. At the beginning of 1902 the public debt was officially stated to be £38,272,627, an increase from £35,898,414 on January 1, 1901. The revenue is largely derived from customs, railways, the public lands and excise; the expenditures are principally devoted to public works, public instruction, and the interest on the public debt.

Industries, Commerce, etc.—Of the total area of the colony, about 97 per cent. is still owned by the state. About one-half of the area consists of forest lands. The pastoral industry is the largest in the state, the horses, in 1900, numbering 456,788; cattle, 4,078,191; sheep, 10,339,185; and swine, 122,187. Agriculture is little developed, only 480,372 acres being under cultivation in 1900. The leading crop is maize, the yield of which in 1900 amounted to 2,456,647 bushels; the wheat yield in the same year was 1,194,088 bushels. The sugar-cane crop is of growing importance, the production in 1901 being 112,031 tons. There are 86,848 acres under gold-mining and mineral leases, the gold output in 1900 being 963,189 ounces, and in 1901 835,553 ounces. The product of the coal, tin, copper, and silver mines are also of considerable value. The imports of Queensland decreased in value from £7,184,112 in 1900 to £6,376,239 in 1901, and the exports from £9,581,562 to £9,249,366. The chief exports in 1901 were: Gold, £2,185,495; wool, £2,131,864; meat, £1,283,183; sugar, £789,191; live stock, £713,206; and hides and skins, £419,228. The railways, nearly all of which are owned and controlled by the state government, had a total mileage in 1901 of 2801 miles in operation. The cost of railway construction to the state up to 1901 was £19,526,370.

History.—In Queensland, one of the last and most reluctant of the Australian states to enter into the Commonwealth, have appeared the first open and official avowals of a desire to withdraw from the union. The growth of the states-rights movement there can be attributed largely to the fact that the most pressing political problem in the state is not the tariff problem upon which the elections in the other states are fought out, but that of the abolition and exclusion of Kanaka, or Polynesian labor, without which, it is declared, the sugar growing industry must die. Queensland claims the right to settle this question for herself but the Commonwealth Parliament in 1901 passed a law, which, while its terms were general, really applied only to Queensland. By its provisions over 9000 Kanakas, 3600 of whom have deposits of over £27,000 in the state savings banks, will be compelled to leave the country by the end of 1906. Without them the sugar planters complain they will be obliged to abandon their plantations and factories. In spite of official protests from Queensland the bill was approved early in 1902. Early in February, 1902, the state parliament was dissolved and the Hon. Robert Philp, the premier, issued an election manifesto in which he voiced the dissatisfaction felt in Queensland with the result of Australian federation, and declared that the Commonwealth government had bitterly disappointed many of the strongest advocates of the union. In the March elections to the assembly the Philp ministry was given a new lease of power by the election of 38 members, including all the cabinet members, as against an Opposition, largely Laborites, of 30. In June another attempt was made by the ministry to secure the disallowance of the Kanaka Labor Act which brought forth a specific declaration from Mr. Chamberlain that as the act involved no imperial public interest His Majesty could not disallow it. The dissatisfaction increased and early in October on the reassembling of the state parliament a resolution was moved by Mr. Plunkett calling on the ministry to take early steps to secure the separation of Queensland from the Commonwealth.

QUICKSILVER. See MERCURY.

QUIMBY, EDWARD EVERETT, an American inventor and patent expert, died February 17, 1902, at Orange, N. J. He was born February 9, 1831, in Bangor, Me. When still a young man he became superintendent of the American Screw Company for which he invented a screw-machine that is still in use. He opened an office in New York in 1886. He had not had the advantage of a scientific, or even a collegiate training, but the faculty of keen observation and soundness of judgment, together with tireless energy, placed him at the head of his profession as a mechanical expert. He was connected with some of the most important patent cases in the country, including the litigation over patent rights of the Bell Telephone Company, and the Western Union Telegraph Company, and the Harvey Steel and Mannesman Tube patents.

RABIES. Dr. G. G. Rambaud, in the *Medical News,* gives the clinical symptoms upon which he establishes the diagnosis of rabies in dogs. These are: (1) Change in the disposition of the dog; (2) unusual manifestations of attachment to its master; (3) disappearance from its home for from several hours to two days; (4) change of bark or total abstinence from barking even on provocation; (5) lack of appetite, difficulty in chewing and swallowing solid food; (6) excitement and hallucinations; the animal snaps at imaginary objects, may attack its own master. Excitement caused by the sight of another dog. This stage may be absent in the dumb form of the disease; (7) the animal eats its own bedding, tears cushions, carpets, etc.; (8) inability to eat; the animal takes food into the mouth but drops it out after one or two attempts at swallowing; drinking, however, is little or not at all interfered with, and *there is no fear of water;* (9) unsteady gait which shows the beginning of the paralysis of the hind legs; dilated pupils; (10) later, paralysis of the lower jaw and general paralysis. The diagnosis of rabies in man is always attended with considerable anxiety both to physician and patient. The only means for the diagnosis of this malady before its actual onset, has been the experimental inoculation of rabbits with an extract of the spinal cord of the rabid animal. Some assistance in this direction is apparently furnished by the researches of Rabieaux and Nicolas, published in 1902. They examined the urine of animals at all stages of the disease, and found the presence of sugar in almost every instance, and they conclude that the test is a valuable aid to the diagnosis of rabies, if not a positive diagnostic sign. .The amount of sugar is frequently very small and a delicate test for sugar (the phenyllhydrazin test) has to be employed. Many cases of hydrophobia occurred in New York City during 1902.

RACING. The season of 1902, for both runners and harness horses, was one of the most brilliant in the history of the American turf. A feature of the running season was the firm stand assumed by stewards throughout the country on the cases of foul riding and other questionable practices brought to their attention, thus denoting the intention to remove from the sport its evident evils. The most important stake events of the year with distance, winner's name, and place of performance, were: American Derby, 1½ miles, Wyeth, Chicago; Belmont Stakes, 1⅜ miles, Masterman, Morris Park, N. Y.; Brighton Handicap, 1¼ miles, Gold Heels, Brighton Beach, N. Y.; Brooklyn Handicap, 1¼ miles, Reina, Gravesend, N. Y.; California Derby, 1¼ miles, Sombrero, Oakland; Crescent City Derby, 1¼ miles, Lord Quex, New Orleans; Futurity, ¾ mile, Savable, Sheepshead, N. Y.; Junior Champion, ¾ mile, Acefull, Gravesend, N. Y.; Metropolitan Handicap, 1 mile, Arsenal, Morris Park, N. Y.; Suburban Handicap, 1¼ miles, Gold Heels, Sheepshead, N. Y. Abroad, the English Derby, 1½ miles, 29 yards, run at Epsom Downs, near London, and considered the most highly prized stake in the world, was won, in 1902, by Ard Patrick, owned by J. Gubbins.

In harness racing, the best performances were: trotting, new records at two miles, 4 minutes 17 seconds, by Cresceus, present holder of the mile record (2 minutes 2¼ seconds); 1⅛ miles, 2 minutes 22½ seconds, Major Delmar; and ½ mile by the same horse, 1 minute 1 second; and pacing, Dan Patch equaled the world's record of 1 minute 59¼ seconds; Prince Alert set a new record for ½ mile at 57¾ seconds; and Direct Hal and Prince Direct made a new record for 1 mile by pacing teams, at 2 minutes 5½ seconds. In 1902 there took place, also, a match race between E. E. Smathers's Lord Derby and T. W. Lawson's Boralma for the largest purse in the history of harness racing—$20,000 a side and a share of the gate receipts, amounting to $10,000 additional. The race was run at Hartford, Conn., and was won by Lord Derby in three heats.

RACQUETS and COURT TENNIS, related descendants of the ancient game of tennis, have in recent years slowly found a place in American sports, and in 1902 strengthened their position by successful seasons. The annual tournament for the racquet championship was held at Boston, Mass., in February and was won by Clarence H. Mackay, of New York, who defeated Quincy A. Shaw, of Boston, in the final round, 2—15, 15—12, 15—7, 15—11. In March, at Philadelphia, the doubles championship was won by G. H. Brooke and H. David, of Philadelphia. They defeated N. Etting and G. McFadden, of Philadelphia, in the finals, 15—6, 15—0, 15—6, 15—8. F. F. Rolland won the championship of Canada, while in England, E. H. Miles, Jr., again won the title. In court tennis, the championship tournament was held at the New York Racquet and Tennis Club in April. Joshua Crane, of Boston, retained the title by defeating L. M. Stockton, of Boston, in the finals, 6—2, 3—6, 6—2, 6—3. E. H. Miles, Jr., won the English championship for the fourth consecutive season.

RAILWAYS. The new railway mileage recorded for the year 1902 was greater than that constructed during any previous year since 1888. In round figures, about 6000 miles of new road were added during the year to the 198,787 miles

in operation on December 31, 1901, thus making the total length of the railways of the United States 204,787 miles. The greatest activity in new construction was in the Southwestern States, where Arkansas, Texas, Oklahoma, Indian Territory, and New Mexico added 2218 miles to their previous railway systems. Considering the work of individual States, Indian Territory leads the column with 541 miles, and is followed by Oklahoma with 532 miles, Texas with 480 miles, New Mexico with 358 miles, and Arkansas with 308 miles. Considered with reference to grouping of States, the new railway is distributed by the *Railway Age* as follows: New England States, 95.05 miles; Middle States, 219 miles; Central Northern States, 567.34 miles; South Atlantic States, 533.15 miles; Gulf and Mississippi Valley States, 481.57 miles; Southwestern States, 2570.11 miles; Northwestern States, 659.39 miles; Pacific States, 426.44 miles.

The greater part of the new construction has been carried on by the larger railway systems in the form of branch lines to open up new and undeveloped territory. As examples, the Chicago, Rock Island and Pacific built 626 miles; the St. Louis and San Francisco, 609 miles; the Santa Fé system, 185 miles; the Great Northern system, 194 miles; the Southern Pacific, 185 miles; the Chicago and Northwestern, 178 miles; and the Missouri Pacific, 137 miles. In addition to the construction of this large mileage of new lines the railways of the United States expended a vast amount of money during 1902 in betterments of their permanent way, structures, and rolling stock. The exact amount of money spent in these works is difficult to estimate, but official records show that the appropriations for new work and betterments aggregated about $200,000,000, and of this sum it is probably fair to assume that two-thirds or say $134,000,000 were expended during the year. Some notion of the amount of new rolling stock added to their equipment during the year by the railways of the United States is had from the following figures of new cars and locomotives ordered which have been compiled by the *Railway Age:*

Freight cars ordered	195,248
Passenger equipment cars ordered	3,459
Locomotives ordered	4,665

These figures are not exact, but they are substantially accurate and such errors as exist are negligible for all ordinary purposes of comparison. Regarding the character and quality of the equipment ordered little need be said except that the tendency of past years toward the use of heavier cars and larger and stronger locomotives was maintained. Comparatively few freight cars of less than 60,000 pounds capacity were ordered, and the orders were numerous for cars of 80,000 pounds and 100,000 pounds capacity. A considerable proportion of these larger cars were of steel construction. As to the increased size of locomotives it need only be mentioned that 460 locomotives were ordered during the year whose weight, including tender, was over 100 tons. Besides the number of engines of unusually heavy weight built during 1902, the year's construction has been notable for the number of "decapod" engines, or engines with five pairs of drivers and a pair of lurching wheels, which have been built for general heavy freight service. Formerly engines of this type have been used almost exclusively for pushing on heavy grades or other special service. Another notable feature of the year's work has been the number of engines working on the southwestern and Pacific railways which have been built for burning oil fuel instead of coal. The Southern Pacific Railway is converting practically all of its engines to oil burners, and the Atchison, Topeka and Santa Fé road is building many of its new engines for the same kind of fuel. In permanent way and track construction the tendency of past years toward heavier and more substantial construction was maintained during 1902. In important bridge and tunnel work the year was also notable. (See BRIDGE-BUILDING and TUNNELS.) There was also important railway terminal improvements. The Pennsylvania tunnel terminal at New York City involving an expenditure of $50,000,000, the new terminal of the New York Central in the same city, and the 5¼ miles of subway and viaduct by which the Long Island Railroad is freeing the streets of Brooklyn, N. Y., from grade crossings, are only magnified examples of the kind of work being done all over the country in cases too numerous to mention. Complete and reliable statistics of railway traffic and earnings will not be available until their publication by *Poor's Manual* and by the Interstate Commerce Commission late in 1903, but in December, 1902, the latter bureau published a preliminary statement of the income account of railways for the year ending June 30, 1902, of which the following is a summary:

"This report prepared by the statistician to the Interstate Commerce Commission, contains returns of railway companies operating 195,945 miles of line, or probably 98 per cent. of the mileage that will be covered in the full report on the statistics of railways for that year. The passenger earnings of the railways represented were $472,429,165, and the freight earnings, $1,200,884,603. Including these and other earnings from operation the gross earnings amounted to $1,711,754,200, or $8736 per mile of line, and operating expenses to $1,106,137,405, or $5645 per mile of line, show-

ing that net earnings were $605,616,795, or $3091 per mile. The net earnings of the roads, it appears, were $51,395,421 greater than those which were received during the previous year. The total income of the roads covered by this advance report, including $82,714,492 derived from investments and miscellaneous sources, was $688,-331,287. Deductions from income aggregated $458,459,961. This amount comprised interest on funded debt, rent of leased lines, betterments charged to income, taxes ($49,426,675), and various minor expenditures. The report shows that dividends declared on stocks amounted to $150,685,959, and it appears from comparative figures that the dividends of essentially the same roads were $29,834,690 greater for the last fiscal year than for 1901. The surplus from the operation of the roads for which returns are compiled was $79,185,367. The complete report for the year ending June 30, 1901, gave a surplus of $84,764,782. It should be stated that this report relates to operating roads only, and consequently does not include dividends paid by leased lines from the income they receive as rental. In the year 1901 the dividends of all the railway companies aggregated $156,735,784, this amount including about $35,-000,000 paid by the leased lines."

RATAZZI, Mme., the name by which the French writer, Mme. Marie Studolmine Bonaparte de Rute, was popularly known. See RUTE.

RAWLINSON, GEORGE, canon of Canterbury, the English scholar who died in Cathedral Precincts, Canterbury, October 6, 1902, was best known as the interpreter to western readers of the history of the ancient East. He was born at Chadlington, Oxfordshire, November 23, 1812, studied at Trinity College, Oxford, was elected fellow of Exeter in 1840, and there, having taken orders, became tutor in 1842 and sub-rector in 1845. In 1846-47 he held a curacy at Merton, Oxfordshire, but subsequently returned to the university, where in 1859 he was appointed Bampton lecturer and was Camden professor of ancient history from 1862 until his resignation in 1889. He was appointed to a canonry of Canterbury in 1872, as the nominee of Gladstone, and in 1888 was preferred to the benefice of All Hallows, Lombard Street, London. His services to the church were less noteworthy than his work as historian, which, through his solid and wide, if not always first-hand scholarship, and his busy industry, won for him high recognition. The *History of Herodotus, a New Translation, with Notes, Appendices, etc.* (1858) and *The Five Great Monarchies of the Ancient Eastern World* (1862), hold distinguished place in the libraries of English and American students. Other titles are: *A History of Ancient Egypt* (1881); *A History of Phœnicia* (1889).

REED, THOMAS BRACKETT, speaker of the United States House of Representatives in the Fifty-first, Fifty-fourth, and Fifty-fifth Congresses, died in Washington, D. C., December 7, 1902. He was born in Portland, Me., October 18, 1839, and at the age of seventeen entered Bowdoin College, where he graduated in 1860. After teaching for a year in the Boys' High School in Portland he entered the law office of Howard and Strout, but before he had completed the period of his legal apprenticeship he sailed around the Horn to California. A few months of school-teaching in Stockton, and a like period of law study in San José, convinced him that opportunities were just as great in New England as on the Pacific Coast, and early in 1864 he returned to Maine. Immediately afterwards he obtained an appointment as an acting assistant-paymaster in the United States Navy, and served in the Civil War on the Western rivers from April, 1864, to November, 1865. Returning again to Portland he was at once admitted to the bar, and opened a law office. In three years, he had established a considerable practice, and won a reputation as a public speaker. He was elected to the lower house of the State legislature in 1868, and again in 1869. An able speech delivered in favor of the election of Lot M. Morrill as United States senator drew the attention of the politicians to him as a young man of exceptional power and unusual promise. His election to the State Senate followed in 1870, and while still a member of that body he was chosen to succeed Wm. P. Frye, as attorney-general of the State, but did not take the oath of office until after the adjournment of the legislature. His service as attorney-general, marked by ability and energy, lasted until 1872, when he retired to devote himself to his private practice. In 1874 he accepted the office of city solicitor of Portland, and served until his election to the Forty-fifth Congress in 1876. In the national House of Representatives he came rapidly to the front, and his constituents, recognizing his ability, returned him every two years. He obtained membership on some of the most important committees where his conscientious work established for him as great a reputation among his fellow members, as his readiness and ability in debate won for him before the public. In the Forty-seventh Congress Reed was made chairman of the judiciary committee and held positions on the important ways and means and rules committees. On the opening of the Fifty-first Congress, with a small Republican majority, he was chosen speaker. Congress met on December 2, 1889, and it immediately became evident that the Democratic minority meant to prevent legislation

THOMAS BRACKETT REED

by filibustering. To meet this factious opposition, and uphold the right of the majority, Speaker Reed, on January 29 and 30, 1890, adopted the plan of counting enough minority members present, but not voting, to make a quorum. The action, which won for him the title of "czar," raised a storm of protest at the time from the Democratic members, but they came in time to see the justice and good sense of his ruling and adopted it as their own under the speakership of Charles F. Crisp two years later. In another way Reed's influence was shown in 1890 when he prevented the passage by the House of Representatives of a free-silver coinage bill, which had already received the approval of the Republican Senate. In the next two Congresses, as leader of the Republican minority, he held his party in the House almost solidly in opposition to all attempts at free-coinage legislation. Always a strong protectionist, he wielded his power as speaker in behalf of the passage of the McKinley Bill in 1890, and led the Republican attack against the Wilson Bill in 1893, and when, upon the opening of the Fifty-fourth Congress with a Republican majority, he was again chosen speaker, he took every opportunity to aid the party leaders in perfecting and securing the passage of the Dingley Bill. In 1896 he was a prominent candidate for the Republican nomination for President, but was defeated by William McKinley of Ohio. At the fall elections of that year, he was re-elected to Congress, however, and as speaker rendered invaluable service to President McKinley, in facilitating as far as lay in his power the administration's war measures, and holding in check the jingoistic tendencies of the House. It was due to him personally that the Senate's rash joint resolution for the recognition of Cuban independence was defeated in the House at that time. He was never in accord with his party on the question of retaining the Philippines, and although re-elected to the Fifty-sixth Congress, he resigned before it assembled, and removed to New York City, where he practiced law up to the time of his death. Without question, Reed ranks as one of the greatest speakers the House of Representatives has ever had. No man in that position ever influenced legislation to such an extent as he, or left upon its code of procedure such a lasting impress.

REED, Walter, who carried on the experiments relating to infection by mosquitoes, after the occupation of Cuba in 1898, died November 23, 1902, at Washington, D. C. He was born in 1851 in Gloucester County, Va., graduated from the University of Virginia and the Bellevue Medical College in New York City, and in 1875 entered the army as an assistant surgeon. His work in bacteriology and pathology won him recognition as one of the foremost authorities in those subjects in the United States, and in 1893 he was appointed curator of the army medical museum in Washington. During the Spanish war he was a member of the board appointed to investigate the causes of typhoid fever in the army. He was on duty afterwards in Cuba studying the causes of disease, especially yellow fever. The board came to the conclusion that disease was carried by mosquitoes, and sanitary measures instituted in accordance with this theory effected practically its extirpation. Major Reed headed the list of surgeon-majors and his promotion was assured.

REEVES, Sir Conrad, chief-justice of Barbados, died there February 5, 1902. He was born in Barbados in 1838 of mixed parentage, and at an early age became an assistant in a printing office. Rising to the position of reporter he displayed such mental aptitude that his friends sent him to England to study law. After returning to Barbados, he soon became prominent in the practice of his profession through his powers as a debater and orator, was elected to the house of assembly in 1873, was solicitor-general from 1874 to 1876, and from 1882 to 1886 served as attorney-general. He became chief justice of Barbados in 1886, and was *ex-officio* president of the Windward Islands Court of Appeals. In 1889 he was knighted.

REFORMED CHURCH IN AMERICA (DUTCH), known until 1857 as the Reformed Protestant Dutch Church, dates from 1628, the year of the establishment of its oldest church. It now has 652 churches, 717 ministers, and 112,898 communicants; and 921 Sunday-schools with 124,672 members. Its greatest strength is in New York and New Jersey, and in those Western States where Hollanders have settled. For congregational purposes, the contributions of the past year were $1,231,464; for denominational enterprises, $276,028; for other objects, $115,203. The ninety-sixth annual session of the General Synod was held in Asbury Park, N. J., beginning June 4. The reports from the various activities of the church indicated general prosperity, those of the Foreign and Domestic Mission Boards being particularly encouraging since both boards had closed the year without debt. The former conducts five missions in China, India, Japan (2), and Arabia, with 24 stations and 249 out-stations, employing 85 missionaries and 573 native workers. Native contributions aggregated $14,548. The board received $25,000 for the equipment and endowment of the Elizabeth R. Voorhees College at Vellore, India. The Board of Domestic Missions administers two funds—for missions and for church building; its total income for 1902 was $95,243. Its work is carried on through three

divisions: Eastern, Western, and Southwestern, and is directed with special attention to the Germans, Hollanders, Indians, and negroes. During the year several new missions were undertaken and three new churches established, and eight churches became self-supporting. There are under the control of the denomination two colleges and theological seminaries, and a theological seminary in India, and five preparatory schools. Its publishing interests include ten periodicals in English, Dutch, and German, the headquarters of the Board of Publication being in New York City. The revision of the liturgy came up before the General Synod, but no definite action was taken, the matter being referred to a committee which was instructed to prepare amended forms to be reported at the next meeting in Asbury Park, June 3, 1903. Before adjournment a special committee was appointed to consider the scheme for federation of the several bodies holding the Presbyterian system. A resolution favoring this movement was introduced at the meeting of the General Synod of the Reformed Presbyterians (*q.v.*); and to the General Assembly of the Presbyterian Church in the United States (South) (*q.v.*) was presented an overture concerning the advisability of organic union with the Dutch Reformed Church. Stated clerk, Rev. William H. De Hart, D.D., Raritan, N. J.

REFORMED CHURCH IN THE UNITED STATES (GERMAN), was organized in 1747 and became independent of the Dutch Reformed Church in 1793. Under the General Synod, which was established in 1863, there are now 8 district synods and 58 classes, corresponding with the presbyteries in Presbyterian bodies. The church has 1691 congregations and 1112 ministers, and 255,408 communicants, an increase of nearly 6500 members during the past year. The contributions both for benevolent and for congregational purposes, also, show a consistent gain in the same period, receipts for the former aggregating $283,954 as compared with $264,344 in 1901, while those for congregational purposes amounted to $1,396,654, as against $1,303,217 in the previous year. There are in the church 1662 Sunday-schools with 24,796 officers and teachers, and attended by 200,178 scholars. The educational interests are represented by four theological seminaries, five colleges, and eight collegiate institutions and academies. Students preparing for the ministry number 199. The German Reformed Church conducts organized missionary work in Japan and China, and its home missions are carried on through Bohemian, Hungarian, German-English, English, and Harbor departments, including about 100 branches under the auspices of the general board, besides a number maintained by the German boards. The board of publication, whose headquarters are in Philadelphia, issues a score of periodicals, the majority of which are in English. The General Synod, the supreme body of the church in judicial and legislative matters, convenes every three years, the session of 1902 having been held in Baltimore, Md., beginning May 20. In 1905 the General Synod will meet in Allentown, Pa. Stated clerk, Rev. John Ph. Stein, D.D., Reading, Pa.

REFORMED EPISCOPAL CHURCH, was founded on December 2, 1873, by seceding members of the Protestant Episcopal Church who opposed the seeming "High Church" tendency in that church. It now has 10,344 communicants, 6 bishops, and 70 presbyters and 12 deacons. There are 6 synods and missionary jurisdictions with 95 churches and missions, having a property valuation, less incumbrances, of $1,669,766. The Sunday-schools, 90 in number, are attended by 11,330 members. Contributions for all purposes during the past year aggregated $165,554. Under the auspices of the church are a theological seminary (value, $90,000) at Philadelphia, and an orphanage at Lalitpur, and a hospital at Lucknow, India. The offices of the publication society are in Philadelphia. The next General Council, which convenes triennially, will be held in Cleveland, O., beginning May 20, 1903. The Reformed Episcopal Church this year lost by death Rt. Rev. James A. Latané, D.D., who was succeeded as presiding bishop by the Rt. Rev. Samuel Fallows, D.D., of Chicago. Dr. William T. Sabine, of New York City, was consecrated a bishop in place of the deceased member of the episcopate.

REFORMED PRESBYTERIANS, descended from the Reformed Presbyterians of Scotland, are included in several divisions: *Reformed Presbyterian Church in the United States* (*Synod*), having 126 ministers, 112 congregations, and 9722 communicants; *Reformed Presbyterian Church in North America* (*General Synod*), having 33 ministers, 37 churches, and 5000 communicants; *Reformed Presbyterian Church* (*Covenanted*), having 1 minister, 1 church, and 40 communicants; *Reformed Presbyterian Church in the United States and Canada*, having 1 minister, 1 church, and 600 communicants (in the United States only). The Synod has under its auspices a college and a seminary, and conducts active home and foreign missionary work, the receipts for which amounted to about $34,500. The total contributions for the past year were $199,079. The annual meeting of the Synod was held in May, in Syracuse, N. Y.; its next meeting will convene in Hopkinton, Ia. The session of General Synod, convened in Philadelphia, was notable chiefly for the resolution

adopted inviting all those bodies holding the Presbyterian system to unite in one General Assembly, an indication of the tendency toward federation that has marked the year 1902. In 1903 the General Synod will meet in South Ryegate, Vt.

REFUSE DISPOSAL. See GARBAGE DISPOSAL.

RÉUNION, an island about 420 miles east of Madagascar, is a French colony, having an area of 965 square miles and a population (1897) of 173,192. The capital is St. Denis. The colony is administered by a governor and an elected council-general, and is represented in the French parliament by a senator and two deputies. The local budget for 1901 balanced at 5,033,700 francs, and the French budget for 1902 included an expenditure for the colony of 4,661,851 francs. The latter figure included 2,452,000 francs for railway and harbor building. (The franc is worth 19.3 cents.) The chief products and exports are sugar, coffee, vanilla, spices, and cacao. Imports and exports in 1900 were valued at 22,029,363 francs and 17,461,279 francs respectively; in 1901, 23,775,948 and 18,200,523 respectively. The leading imports are rice (6,243,321 francs in 1901), other food stuffs, cotton textiles, and iron and steel goods. The sugar export in 1901 amounted to 11,541,285 francs. The trade is very largely French; in 1901 the imports from and the exports to France and French colonies being about 16,483,000 francs and 18,021,000 francs respectively. There are 83 miles of railway, owned by the government. In the fall of 1902 the French government contracted for a telegraphic cable from Tamatave (Madagascar) to Réunion and from Réunion to Mauritius.

RHODE ISLAND, a New England State of the United States, has an area of 1250 square miles. Rhode Island was one of the original thirteen States of the Union. The population in 1900 was 428,556, and in June, 1902, as estimated by the government actuary, 447,000. By a constitutional amendment in 1900 Newport was abandoned as the second capital of the State, and Providence was made the sole capital. The largest cities in 1900 were: Providence, 175,597; Pawtucket, 39,231; and Woonsocket, 28,204.

Finance.—The balance on hand in the treasury of Rhode Island on January 1, 1902, was $158,272.71. The total receipts during the year were $1,490,621.96 and the expenditures $1,537,502.41, leaving a balance on December 31, 1902, of $111,392.26. The total funded debt at the end of the year was $2,978,000. From this, however, should be deducted a sinking fund of $444,451.56, leaving a net funded debt of $2,553,548.44. The amount of debt reduction during the year was $250,014.95, and there was an unfunded debt of $20,000. It was recommended by State officials that the mode of taxation be to some extent changed and that a law be enacted similar to the Ford Franchise Tax law of New York, under which all quasi-public corporations would pay taxes at the same rate as did private individuals upon their real estate.

Industries.—The latest official statistics of industries in Rhode Island cover the year 1900, when 186 textile manufacturing establishments reported to the Rhode Island bureau of statistics. The average number of employees for that year was 46,220, as against 44,832 for the previous year. The total wages paid were $17,404,954, an increase of $1,771,438, or 11.33 per cent. The average yearly wages increased from $348.71 to $376.57, or 7.99 per cent. The real estate owned by textile manufacturers amounted to $24,601,128, the personal estate amounted to $14,055,554, making a total capital of $38,656,682 invested in the textile industries, upon which $480,803.11 in taxes were paid to the State. The metal industries were especially active during 1902.

Conventions and Platforms.—The platform of the Democratic State convention, held at Providence on October 1, opposed "government by injunction"; favored the popular election of federal senators; pledged support to laws ameliorating the condition of the working classes; attacked the Republican State administration for legislation said to favor corporations; and demanded the initiative and referendum, ownership of public utilities, and a three-cent car fare. The Republican State convention, held at Providence on October 1, endorsed the President's policy; recommended his nomination in 1904; upheld protection, though recognizing that new conditions might require a readjustment of tariff rates, and demanded summary legislation for the correction of evils growing out of aggregations of capital, though not condemning such aggregations when they resulted in cheaper prices to the people.

Elections.—At the annual election, held November 4, 1902, the Democrats elected the governor and lieutenant-governor, all the other State offices being secured by the Republicans. The vote for governor was Garvin (Dem.), 32,297; Kimball (Rep.), 24,541, giving Garvin a plurality of 7738. Dr. Garvin has figured conspicuously in Rhode Island politics for the past twenty years, and has several times served in the House of Representatives. It is thought that his election was due largely to the action of Governor Kimball in calling out the militia during the

Providence-Pawtucket street railway strike in the summer of 1902—an action which made the governor unpopular with the labor unions throughout the State. The State legislature for 1903 will consist of 27 Republicans and 11 Democrats in the senate, and 37 Republicans and 35 Democrats in the house.

State Officers.—For 1902: Governor, Charles D. Kimball; lieutenant-governor, George L. Shipley; secretary of state, Charles P. Bennett; auditor and commissioner of insurance, Charles C. Gray; treasurer, Walter A. Read; attorney-general, Charles F. Stearns; superintendent of public instruction, T. B. Stockwell; railroad commissioner, Edward L. Freeman—all Republicans. For 1903: Governor, L. F. C. Garvin, elected for one year, term ending January, 1904; lieutenant-governor, Adelard Archambault; secretary of state, Charles P. Bennett; auditor and commissioner of insurance, Charles C. Gray; treasurer, Walter A. Read; attorney-general, Charles F. Stearns; superintendent of public instruction, Thomas B. Stockwell; railroad commissioner, Edward L. Freeman—all Republicans except Garvin and Archambault.

Supreme Court for 1902 and 1903: Chief justice, John H. Stiness; associate justices, Pardon E. Tillinghast, George A. Wilbur, Horatio Rogers, William W. Douglas, Edward Church Dubois, and John Taggard Blodgett—all Republicans.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

RHODES, CECIL JOHN, a South African statesman and capitalist, died at Cape Town, March 26, 1902. He was born in the vicarage of Bishop's Stortford, Hertfordshire, England, July 5, 1853, and after studying at the grammar school of his native town had his name entered in 1870 at Oriel College, Oxford. A severe attack of lung trouble made it necessary for him to leave England, and in July of the same year he sailed for Natal, where his elder brother was engaged in cotton-raising. Rhodes landed in South Africa in the very midst of the rush for the newly discovered diamond fields of Griqualand West, and after a few months spent in farming, caught the diamond fever and in 1871 was at Kimberley. Within a year he was rich, and as his health continued to improve in the dry air of the uplands, he determined to return to England for the purpose of resuming his interrupted education. In 1873 he was matriculated at Oxford, and from 1876 to 1881, in which year he received his B.A. and M.A., he kept his terms at the university, passing six months of the year in England and six months in Africa, where he dug diamonds and speculated in mining claims with conspicuous success. In 1880 he was elected to the Cape parliament from Barkly West. His earliest efforts were directed toward establishing closer relations between the British and the Dutch inhabitants of the Colony, as the first step toward bringing about the supremacy of the British empire in South Africa, for even at this time Rhodes recognized that "Great Britain could rule South Africa only through the Dutch." In 1881-82 he began to advocate the extension of the British authority over Griqualand West and Bechuanaland for the purpose of preserving the trade route into the interior and keeping an open field for the future expansion of Cape Colony. Already Boer commandos from the Transvaal had trekked into Bechuanaland and had set up a number of miniature republics, preparatory, Rhodes believed, to the absorption of the country by the Transvaal. His exhortations stirred a sluggish ministry to action, and in February, 1884, Bechuanaland was declared a British protectorate. As deputy-commissioner, Rhodes in 1885 for the first time came into contact with President Kruger, destined to become his life-long rival. In 1887 the Boers began to cross the Limpopo River into Matabeleland, and Rhodes discerned in this a further danger to the progress of British expansion northward. In 1888 Lobengula, king of the Matabele, pledged himself to permit no power except Great Britain to establish a protectorate over his land. The home authorities, however, made no effort to follow up this gain, and Rhodes hit upon the plan of a chartered company that should take possession of the vast region beyond the Limpopo, and hold it in trust, as it were, for the British empire. From Lobengula Rhodes obtained the sole right of searching for minerals within his dominions, and in October, 1889, the British South Africa Company was incorporated for a period of twenty-five years, and acquired full rights of sovereignty over an area of 174,000 square miles, subject only to the distant and problematical control of a British secretary of state. The sole power in fact rested in the hands of Rhodes. In September, 1890, a band of 180 pioneers founded Fort Salisbury in Mashonaland, the first of a number of settlements that sprang up in what soon came to be called "Rhodesia." The great outlays involved in opening up the country were met by Rhodes from the surplus funds of the De Beers Consolidated Mines, a corporation controlling the entire diamond industry at Kimberley and formed in 1888 after nearly fifteen years of effort on the part of Rhodes, who, with Mr. Alfred Beit (q.v.) and Barney Barnato, stood at the head of its affairs.

In 1890 Rhodes became premier of Cape Colony with the support of the Afri-

CECIL RHODES

cander Bond. While in office he accomplished much good in the important field of legislation dealing with the native races. He also pursued his object of welding together the British and the Dutch elements into one nationality; advocated, for this purpose, the establishment of a teaching university at Cape Town for students from the different South African states; and spoke openly of what he regarded as the inevitable political outcome—the federation of South Africa under the British flag. In 1893 the Matabele broke out into a formidable insurrection, which for a time threatened the existence of the settlements in Rhodesia. After severe fighting the natives were defeated, Lobengula was forced to flee, and Matabeleland was brought under the rule of the Chartered Company. Rhodes immediately set to work to repair the ravages of the war. It was the necessity of bringing Mashonaland nearer to the Cape that led him to conceive the plan of a telegraph line and a railway running from Cape Town to Rhodesia all the way through British territory—a plan which matured into the celebrated Cape-to-Cairo Railway (*q.v.*).

The Jameson Raid came as a crushing blow to Rhodes. The full truth of the Raid has not yet been ascertained, but Rhodes took upon himself the responsibility for Dr. Jameson's act, although he repeatedly declared that the latter had "gone in" without his orders. On December 31, 1895, he laid down the premiership. For some time thereafter he busied himself with the interests of Rhodesia, where a rising of the Matabele was terminated in 1896 by an act of daring on the part of Rhodes, who, unarmed and with only two companions, entered the enemy's camp and bullied the Matabele into arranging terms of peace. In February, 1897, Rhodes appeared before the committee of the House of Commons appointed to investigate the Jameson Raid. There he justified his course in regard to the Transvaal by reciting the wrongs of the Uitlanders, the iniquities of the "Boer oligarchy," and the danger of German interference in South African affairs to the detriment of Great Britain.

In 1898 Rhodes was re-elected to the Cape parliament, but he passed the greater part of the two succeeding years in England and on the continent, carrying on negotiations with Mr. Chamberlain and the German emperor in regard to his Cape-to-Cairo Railway and telegraph. In 1899 he received the degree of D.C.L. from Oxford. Back in Cape Colony in July of the latter year, Rhodes scoffed at the idea of war with the Transvaal, being seemingly persuaded that President Kruger was playing his old game of "bluff." Upon the outbreak of the war Rhodes barely had time to throw himself into Kimberley before it was invested by the Boers. Although at odds with the military authorities, he took a leading part in the defence of the town. During the progress of the war his old illness attacked him. He went to Egypt in the early part of 1901, but failed to find health there, and returned in February, 1902, to Cape Colony. He died after a long period of unconsciousness, and, in accordance with the desire expressed in his will, was buried on his estate in the Matoppo Hills, near Buluwayo.

In his lifetime Rhodes was variously characterized as the greatest of living men, as the worst example of the triumphant capitalism of the nineteenth century, as a dreamer of empires, and as an unscrupulous adventurer. He was theatrical, sincere, cynical, naïve, unimpeachably honest, and a gambler in stocks. In a measure all of his critics were right. Early in life Rhodes had become convinced that the interests of England and the welfare of humanity required the extension of the British rule over the world. As a preliminary step, it was essential that all the members of the English stock should be united. Rhodes dreamed, therefore, of a federated empire embracing the English-speaking world and held together by the ideals of liberty and justice that are the peculiar inheritance of the English race. To undo the work of the American Revolution, Rhodes was prepared to adopt the United States Constitution as the organic law for his empire and to have his imperial parliament meet alternately at Washington and Westminster. He perceived that the execution of his plans was the work neither of one man nor of one day, and he conceived the project of a secret society of wealthy men throughout the world, who after the manner of the Jesuits should labor for the attainment of the great end. If Oxford had taught him ideals of world-wide rule and imperial responsibilities, the diamond fields of Kimberley and the company of men like Barney Barnato had endowed him with a full appreciation of the power of wealth. Wealthy men, chartered associations working for profits, railway and telegraph companies, were to bring about the desired end. The world was to be redeemed by Anglo-Saxon ideals working through financial channels; or, as he himself called it, through "philanthropy and 5 per cent." With time, however, Rhodes grew less sanguine as to the realization of his ideal, and he prudently narrowed the sphere of his ambitions from the world to the Dark Continent and from a federated British empire to a federated South Africa under the British flag, to be made, in time, co-extensive with the limits of the continent.

With Rhodes the belief in the superiority of the English race was the result not

of reasoning but of feeling. He had implicit faith in his intuitions, and he possessed that sublime courage and steadfastness which often come from lack of a higher education; for, in spite of his world-embracing schemes, Rhodes had not that broadness of spirit or intellect which we designate as "culture." A vast, rugged, unlearned simplicity was the basis of his nature, and it revealed itself in many ways in his personality and his actions; in his intense earnestness, his direct method of attack on whatever problem presented itself, his disregard of the finer problems of ethics in the realm of advanced finance and politics, his incapacity for deep, analytic reasoning, his general homeliness of expression. Nothing perhaps better reveals the blending in Rhodes of what at times approaches the sublime with the trivial and the crude than that remarkable document, his will. The man who left an immense fortune for the purpose of educating the Anglo-Saxon youth to the ideas of empire, and who with splendid faith designated his home as a residence for the prime minister of "the States of South Africa," left also a fund for "the maintaining of at least two carriage horses" for the use of this minister. His estate in the Matoppo Hills, where his body now rests, he reserved as a national cemetery for those whom the federal government shall have decreed deserving of their country "by a majority of two-thirds." Finally, Rhodes charges his trustees to build a short railway from Buluwayo to Westacre, "so that the people of Buluwayo may enjoy the glory of the Matoppos between Saturday and Monday."

For an account of the scholarships established by Cecil Rhodes in his will, see UNIVERSITIES AND COLLEGES.

RHODESIA, an inland territory of South Africa, under the protection of Great Britain, has an area not definitely determined but estimated by some authorities at about 454,000 square miles. The population also is unknown, but is probably over 1,170,000. Rhodesia, which is divided by the Zambezi River into two parts, Southern and Northern, extends from the Transvaal northward to the Congo Free State and German East Africa.

Southern Rhodesia consists of Matabeleland (bounded on the south by the Limpopo, and Mashonaland (reaching to the Zambezi); on the east and west respectively are Portuguese East Africa and the Bechuanaland Protectorate. According to an enumeration of May, 1901, Matabeleland had 170,128 inhabitants, of whom 162,211 were natives, and Mashonaland 332,937, of whom 328,729 were natives. On March 31, 1902, the natives were estimated at 515,000. In 1902 the white population of Salisbury (Mashonaland), the capital of Southern Rhodesia, was stated to be about 4500, and of Buluwayo, the chief town of Matabeleland, about 7500. Near Buluwayo, on April 10, 1902, Cecil Rhodes (*q.v.*) was buried. Southern Rhodesia is administered, under the high commissioner for South Africa, by the British South Africa Company in virtue of its charter which was granted October 29, 1889, and amended by the orders in council of May 9, 1891, July 18, 1894, and November 25, 1898. Registered voters elect a minority representation in the legislative council. The administrator in 1902, representing the company, was W. H. Milton (since 1898), and the resident commissioner, representing the imperial government, Lieut.-Col. Sir Marshall Clarke (since 1898). For the fiscal year 1901, revenue and expenditure are stated at £406,467 and £639,239, respectively; for 1902, £435,257 and £710,563, respectively; for 1903 the revenue was estimated at £515,200. The country is rich in minerals, especially gold and coal; the output of gold for the fiscal year 1902 amounted to 180,889 ounces. The success of the Chartered Company in developing the country has been remarkable, despite the difficulties occasioned by the rinderpest and locusts in 1896, native insurrections in 1896 and 1897, and the Boer War, 1899-1902. The most serious difficulty now is the scarcity of labor, and in some quarters the company has been criticised for its practically coercive methods of procuring native workers for the mines. One of the principal efforts of the company has been the construction of railways, and this work is being steadily carried forward. (For the main lines, the Mashonaland, or Beira, and the Rhodesian, see CAPE-TO-CAIRO RAILWAY.) There is a light railway from Salisbury to the Ayrshire coal mine (78 miles); a line from Buluwayo to the Gwanda district (95 miles), for gold and coal exploitation, was under construction in 1902, and in the fall of that year provision was made for lines between Salisbury and the Mazoe district (26 miles), and Gwelo and Selukwe (about 21 miles). In December, 1902, it was announced that the Chartered Company had decided to expend £2,000,000 on Rhodesian railways. Of this sum £1,000,000 was to be expended forthwith upon the extension of the Rhodesia (Cape-to-Cairo) railway to Victoria Falls, and for the construction of various branch lines and improvements on railway already built. The second £1,000,000, which would probably be sanctioned by the end of 1903, would be used in carrying the Cape-to-Cairo line about 300 miles north of the Zambezi.

In August, 1902, further discoveries in the remarkable ruins at Zimbabwe were reported.

Northern Rhodesia, which with the British Central Africa Protectorate (Nyassaland) is also known as British Central Africa, is bounded on the east by that protectorate and on the west by Angola. Estimates place the area at about 310,000 square miles and the number of inhabitants at upwards of 640,000. The territory, which is administered by the British South Africa Company, under orders in council of 1899 and 1900, is divided into Northeastern Rhodesia and Northwestern Rhodesia (Barotseland). The administrator of the former in 1902 was Robert E. Codrington (since 1900), resident at Fort Jameson; and of the latter Robert T. Coryndon (since 1900), with headquarters at Lealui. To a large extent the natives are still governed by their own chiefs. The Cape-to-Cairo Railway (*q.v.*) will pass through Barotseland. Under the native king of Barotseland, Lewanika (a picturesque personage at the coronation of King Edward VII. in August, 1902) the arts of peace and civilization have made noteworthy progress. Upon leaving England for home on August 23, he said he hoped the British government would prevent other powers from encroaching upon "his" territory, and that so far as practicable he would adopt European methods in his native land. In December, 1902, the British South Africa Company proclaimed the whole of Northeastern Rhodesia closed to the rubber trade from January 1, 1903.

RIBOLDI, Agostino, member of the Sacred College of Cardinals of the Roman Catholic Church, died at Rome, Italy, on April 26, 1902. He was born at Paderno Milanese, archdiocese of Milan, February 18, 1839, became archbishop of Ravenna, and on April 15, 1901, was created and proclaimed cardinal-priest, with appointment to the titular church of SS. Nereo e Achilleo.

RICE. The extension of the area devoted to rice growing in Texas and Louisiana has continued during 1902, and preliminary experiments by the Arkansas experiment station in cooperation with farmers indicate that rice may be profitably grown on the prairies in eastern Arkansas. An important report on the irrigation of rice in the United States has been issued by the Department of Agriculture as Bulletin 113 of the office of experiment stations. This shows that, through the successful introduction of a system of irrigation suited to the local conditions in Louisiana, lands which in 1888 were valued at from $1 to $3.50 per acre, now bring from $30 to $50 when under large canals, and even the rice land not under canals and at a distance from the railroad is valued as high as $15 per acre. Measurements of the water used in the irrigation of rice at Crowley, La., and Raywood, Texas, have been recently made by experts of the Department of Agriculture. At Crowley a rice field of 37.44 acres received 16.47 inches of water from the canals and 10.04 inches from rainfall, or a total of 26.51 inches. The evaporation during the same period amounted to 14.47 inches, leaving a net supply of 12.04 inches of water for the crop. The data obtained at Raywood indicated that a net amount of 12.78 inches of water was required to mature the crop under investigation. The cost of the fuel necessary to irrigate an acre of rice was from 60 cents to $1 when oil was used, and from $2 to $3 when wood or coal was used. Crude mineral oil has proved a most satisfactory fuel for this purpose. Most of the pumps have thus far been operated by steam, but two electric plants have been in successful operation the past season in Texas, and it is believed that electricity may be profitably employed in this way. Many wells are being sunk for irrigating purposes in the rice-growing region of Texas and Louisiana. An 8-inch well waters from 100 to 140 acres, and the farm methods and earnings are the same as when canals are used for irrigation. It is estimated that there are about 10,000,000 acres of land in the five Gulf States well suited to rice culture, and that about 3,000,000 acres can be successfully irrigated. To provide good seed rice a company has recently been organized at Orange, Texas, and will operate a 4000-acre farm. A chemical investigation of the rice plant and the products and by-products of the rice industry has been made by the South Carolina experiment station. The successful use of rice for silage has been reported from Queensland, Australia. Queensland produced about 4 per cent. of the rice consumed in that country, and the future prospects of the rice industry there are considered encouraging.

As reported by the division of foreign markets, Department of Agriculture, the imports of rice into the United States in 1902 amounted to 75,674,776 pounds (valued at $1,596,210), and of rice flour, rice meal and broken rice 81,984,118 pounds (valued at $1,330,711). The exports of rice were 615,036 pounds (valued at $29,707), and of rice bran, meal and polish 28,976,238 pounds (valued at $228,010).

ROACH, William Nathaniel, ex-senator from North Dakota, died September 7, 1902, in New York City. He was born September 25, 1840, in Washington, D. C., and was educated at Georgetown University. During the Civil War he was a clerk in the quartermaster's department. In 1879 he removed to Dakota, where he got government mail contracts, and established some good mail roads over that thinly settled territory. He then took up land and engaged in

farming. From 1885 to 1887 he was mayor of Larimore, and in 1885 was also a member of the Territorial legislature. He twice received the Democratic nomination for governor after North Dakota had become a State, and in 1893 was elected to the United States Senate. As the leader of the delegation from North Dakota in 1896, he supported William Jennings Bryan at the Democratic national convention.

ROADS. See PAVEMENTS, STREETS AND ROADS.

ROBERTS-AUSTEN, Sir WILLIAM CHANDLER, assay master of the British mint and professor of metallurgy in the Royal School of Mines since 1880, died in London, November 22, 1902. He was born in 1843 and was educated as a mining engineer at the Royal School of Mines, and on his graduation he was appointed to the scientific staff of the British mint. In 1869 he was made assayer and in 1882 assay master, with all the scientific work of the mint under his control. Professor Roberts-Austen was well known among metallurgists as an authority on alloys, and he took an important part in the various researches on alloys of a committee of the Institute of Mechanical Engineers. He devised a photographic recording pyrometer and carried on many researches on iron and steel. He prepared an important paper on the action of projectiles and explosives on gun tubes, and this, as well as his other researches, was well illustrated by microphotographs which he had prepared. As a consulting expert he served the government on numerous occasions when called upon to consider some scientific or engineering problem, and was made a C.B. in 1890 and K.C.B. in 1899. He was president of the Iron and Steel Institute (1899-1901), and was a fellow (1875) and member of the council of the Royal Society, as well as an honorary member of the leading engineering societies, and at one time vice-president of the Physical Society of London, of which he was one of the founders. He wrote *An Introduction to the Study of Metallurgy*.

ROCHAMBEAU STATUE, DEDICATION OF THE. An event that gave an opportunity for the semi-official expression and re-affirmation of friendship between the world's two greatest republics occurred at Washington, D. C., May 24, 1902, on the occasion of the dedication in that city of the statue of the Marquis de Rochambeau, commander-in-chief of the French forces that rendered such valuable aid to the American cause in the siege and capture of Yorktown during the War for Independence. The statue itself, which stands in Lafayette Square, is a replica of the memorial designed by Ferdinand Hamar and unveiled at Vendôme, the birthplace of Rochambeau, in 1899. A mission sent by President Loubet, at the head of which was General Brugère, commander-in-chief of the French army, took part in the exercises. Representatives of both the Rochambeau and Lafayette families were present, and the statue was unveiled by the hand of the present Marquise de Rochambeau. The dedicatory exercises were officially attended by the President's cabinet, and addresses were made by M. Cambon, the French ambassador; General Brugère, Senator Lodge of Massachusetts, and Gen. Horace Porter, United States ambassador to France.

ROMAN CATHOLIC CHURCH. The year 1902 in the Catholic Church was remarkable especially for the opening of the papal jubilee, the creation of the pontifical commission on Biblical studies, and for the negotiations between the Vatican and the United States in regard to the situation in the Philippines. The enforcement of the Associations law in France, and the anti-clerical movement in Spain and Portugal also elicited general interest.

On March 3 occurred the celebration marking the inauguration of the papal jubilee, the twenty-fifth year of the pontificate of Leo XIII. having begun on February 20. This event, particularly noteworthy since only two other popes—St. Peter, according to tradition, and Pius IX.—have reigned so long, was commemorated in all lands by Roman Catholics. Congratulatory messages were received by the Pope, and many pilgrimages were made to Rome throughout the year. Three encyclicals were issued by Pope Leo in 1902. The first, on "the evils of modern society and their remedies," the so-called testament of His Holiness, was dated March 19. It treated of socialism and anarchy, of atheism and freemasonry, and condemned divorce laws, the proposed divorce legislation in Italy being responsible for the reference to divorce. The encyclical on the "Holy Eucharist," published on May 28, completed the series on the Divine Redeemer and the sacred heart. On October 30 was issued the letter on the study of the Scriptures, formally establishing the papal Biblical commission and defining the scope of its work. Thorough study in the light of modern research and positive interpretation of the Scriptures, with the maintenance of the absolute authority of the Bible, were the guiding instructions laid down. The creation of this commission, early in 1902, was considered of great importance, inasmuch as it recognized the influence of higher criticism, by some regarded as the outcome of the denunciation to the Vati-

THE ROCHAMBEAU STATUE, Washington, D. C.

can of the liberal views of Dr. Alfred Loisy. Cardinal Parocchi was named as the head of the commission, which is composed of two other cardinals as "assessors," Rev. David Fleming as secretary, and "consultors" from various countries, Dr. Charles P. Grannan, of the Catholic University in Washington, being the American representative. During 1902, the Sacred College lost by death Cardinals Ciasca, Dell' Olio, Ledochowski, Aloisi-Masella, Missia, Riboldi, and Schlauch. (For the cardinals of the Church, see CARDINALS.) Cardinal Ledochowski was succeeded as prefect of the propaganda by Cardinal Girolamo Maria Gotti (*q.v.*). This appointment was of special interest to the United States, which is a missionary country under direct control of the propaganda. Other important appointments were Mgr. Diomede Falconio, formerly apostolic delegate in Canada, as apostolic delegate in the United States; Mgr. Donatus Sbarretti as apostolic delegate in Canada, and Mgr. Guidi as apostolic delegate in the Philippine Islands.

United States.—The Roman Catholic Church is the oldest, as well as the largest, Christian denomination in the United States. The Catholic population in the United States and its possessions is estimated at 18,853,951. Of this total 11,289,710 are in the United States and 6,565,998 in the Philippines. The churches in this country number 10,878, and the priests, 9743 of the secular clergy and 3225 clergy of religious orders. There are 14 archbishops, one of whom is a cardinal, and 86 bishops. The educational interests of the church are represented by 7 universities, and 71 seminaries with 3382 students; 3978 parish schools with 963,683 pupils. There are 923 charitable institutions. Serious losses in the episcopate were sustained in the death of Archbishop Corrigan of New York and of Archbishop Feehan of Chicago. The Rev. John M. Farley, auxiliary bishop of New York, was nominated to succeed Archbishop Corrigan. Rt. Rev. J. B. Pitaval was appointed auxiliary bishop to the archbishop of Santa Fé, and Rt. Rev. George Montgomery coadjutor to the archbishop of San Francisco; Very Rev. Philip J. Garrigan became bishop of Sioux City, Ia.; Rt. Rev. William J. Kenny, bishop of St. Augustine; Rev. James J. Keane, bishop of Cheyenne, and Very Rev. J. N. Stariha, bishop of Lead City. In the United States several notable jubilees were celebrated during 1902. Bishop Spalding celebrated his episcopal silver jubilee, and Cardinal Gibbons his archiepiscopal silver jubilee; Archbishop Ryan celebrated the thirtieth anniversary of his consecration as bishop. Archbishop Ryan came into public notice also through his appointment by President Roosevelt on the Board of Indian Commissioners. The golden jubilee celebration of the Passionist Fathers in the United States was held late in December. Educational matters occupied a prominent place in the history of 1902. A department of pedagogy in connection with the Catholic University of America was opened on October 1 in St. Francis Xavier College, New York City; and the project of a seminary for home and insular missions is well under way. The seminary, which is to be known as the Apostolic Mission House, is located in Washington, D. C. Liberal subscriptions have been received for its buildings and endowment. The Catholic Winter School held its seventh annual session February 15 to March 3, in New Orleans; and the Catholic Summer School was in session from July 6 to September 5 at Cliff Haven, N. Y. The fourth annual conference of Catholic colleges in the United States was held in Chicago, July 9 and 10. The convention of the American Federation of Catholic Societies in Chicago, August 5-7, was of note as the first meeting of the completely organized federation. The Catholic Total Abstinence Union held its convention in August, at Dubuque, Iowa. There has been considerable discussion of the movement on the part of the Catholics of this country to get from under the control of the propaganda which directs affairs in the United States, as it is a missionary country. The Pious Fund case, involving funds of the Roman Catholic Church, was carried by Mexico and the United States to the International Court at The Hague, which rendered decision in favor of the United States. See ARBITRATION, INTERNATIONAL.

The Philippines.—The most important event of the year 1902 in connection with the Philippines was the conference between Governor Taft and the Vatican. The negotiations were conducted with cordiality and conciliation, and were generally successful in preparing the way for the final details to be arranged in Manila. (See PHILIPPINES, paragraph Monastic Orders.) The movement under Gregorio Agilpay, an excommunicated native priest, resulting in the establishment of an Independent Catholic church, has assumed considerable proportions. The church was formally instituted on October 27. A riot in Manila was caused by the forcible seizure of a church by followers of the new church, who claimed the property on the ground that the church had been built on public lands and by popular subscription. Agilpay in a memorial to Governor Taft laid claim to the cathedral of Manila.

Europe.—In France, interest was centred during 1902 in the enforcement of the Law of Associations, which was attended by great tumult. (See FRANCE, paragraph Associations Law.) The Church was outspoken in its hostility, and no little

criticism of the policy of the French government was expressed by disinterested parties. The other side of the question was presented with equal vigor. The houses of the religious orders from France that settled in Switzerland were closed, according to an article of the Swiss constitution which prohibits "the foundation of new convents or religious orders, or the re-establishment of those which have been suppressed." The situation in Spain also is critical. (See SPAIN.) There are, according to government statistics, 3115 religious communities, comprising 50,933 members, nearly all of which applied for the required authorization. The reform movement contemplates also a reduction in the clerical budget, through the disestablishment of several church jurisdictions. The government regulations of Portugal concerning religious orders are very strict, and have been received with much opposition. The "Los von Rom" movement in Austria is rapidly gaining, according to its advocates, the accessions being made by both the Protestant and Old Catholic churches. The Roman Catholic episcopacy issued a pastoral letter warning their constituents against the movement. There is said to be, in contrast with the away-from-Rome agitation, a liberal movement in the Catholic churches of Austria, Germany and France which aims at reform of the church from within, not by separating from it. Better education of the priesthood and less dogmatism, with greater recognition of the results of higher criticism, form the basis of this movement. See AUSTRIA-HUNGARY (paragraphs Pan-Germanism and "The Los von Rom" Movement).

Missions.—An interesting report in English was issued from Baltimore in 1902 by the Society for the Propagation of the Faith. This society, which is distinct from the Congregation de Propaganda Fide, was organized in Lyons, France, in 1822 for the support of missionaries. It received from 1822 to 1900 total contributions amounting to $65,690,017, of which more than $42,000,000 came from France and her colonies. This money was distributed as follows: America, $9,973,916; Europe, $9,799,854; Asia, $25,932,446; Africa, $8,815,953; Oceanica, $6,011,630; special gifts sent to missions, transportation and traveling expenses of missionaries, publications, and management of the society, $5,156,218. There are some 65,000 persons engaged in missionary work, and the number of missions aided by the society is several hundred. More missions are maintained in Asia than on any other continent.

RÖNTGEN RAYS IN MEDICINE. The X-rays as a therapeutic and diagnostic agent received widespread attention during 1902, and many new uses were found for them in both capacities. Among the diseases in which they have been employed are cancer, sarcoma, sycosis, various forms of dermatitis, hypertrichosis, favus, eczema, psoriasis, acne rosacea, prurigo, herpes tonsurans. They have also been used to remove superfluous hair. As a means of diagnosis they have proved useful in fractures of the bones, in differentiating osteomyelitis, osseous cyst, osteosarcoma and other bone lesions. In the soft tissues they have been employed to determine the limits of cardiac dullness (that is, the position of the heart in relation to the chest wall); in the diagnosis of the various stages of pulmonary tuberculosis, the limits of pneumonia, and other lung lesions; in the diagnosis of aneurism of the aorta; and even, it is claimed by one observer, to demonstrate the presence of a tumor at the base of the brain. Foreign bodies can be located in almost any part of the body, and this is sometimes very useful when an object has been swallowed, or drawn into the windpipe, or lodged, as in the case of a bullet, in the brain. Radioscopy of the abdomen is very difficult, on account of the continual movement of the intestines. This can be obviated in some degree by giving opium. It is not possible to diagnose by the X-rays in this part of the body the presence of an abscess, hydronephrosis, or malignant tumor, but renal calculi can often be detected, and sometimes gall stones when they contain calcium carbonate. The method is also useful in recognizing diseases of the spinal column. Dr. William A. Pusey sums up the present status of the Röntgen ray treatment as follows: (1) It is painless; (2) it destroys diseased tissue but leaves healthy tissue in its place; (3) it leaves small scars; (4) it can be used in cases in which the surrounding healthy tissue cannot be sacrificed; and hence is available for cases in which ordinary methods involve extensive operations and subsequent disfigurement, as in lesions about the eye and nose; (5) it is also available when the usual methods are impossible on account of the amount of tissue necessary to be removed; (6) it often relieves pain. In general, it is probably advisable to limit the use of the X-rays to cases which it would be impossible to treat by ordinary methods, except perhaps cutaneous cancer. The bactericidal effects of the Röntgen rays have been tested by Dr. H. Rieder, of Germany. He noted the effects of the rays on cultures of the cholera vibrio, and the bacillus prodigiosus and bacterium coli. The cultures were covered with a lead sheet with a central opening and held very near to the tube. A distinct bactericidal effect was noted in all experiments, in from twenty to thirty minutes, which was, however, much less marked in fully developed than in immature colonies. The

investigator concludes that since conditions are so different in human bodies, and with sufficiently concentrated rays there is great danger of injuring the skin, little can be expected in the treatment of infectious diseases.

ROOD, Ogden Nicholas, professor of physics in Columbia University, died in New York City, November 12, 1902. He was born in Danbury, Conn., February 3, 1831, and was educated at Yale and Princeton, graduating from the latter institution in 1852. After post-graduate studies at Sheffield Scientific School (Yale) he spent four years in European laboratories, especially those of the universities of Munich and Berlin. On his return to America in 1858, he accepted a professorship of chemistry and physics in Troy University, where he remained until 1863, and was called to Columbia College in 1864. In the same year he was elected a member of the National Academy of Sciences. Devoting himself to the experimental side of physical study rather than to abstruse mathematical investigation, by great manipulative skill and refinement of method he was able to push his investigations to extremes never before realized. As an authority on light and more particularly on color, he enjoyed a unique reputation, and his work on *Modern Chromatics* (New York, 1879), and his many papers published in the *American Journal of Science* have been widely read. In addition, he carried on important researches in photography, microscopy, acoustics, ballistics, the duration of electric sparks and lightning flashes, and the stereoscope; and in each field he contributed one or more important papers to scientific publications. In 1880-81 he devised an improved form of Sprengel mercury air-pump, with which he was able to secure a far higher vacuum (almost one four-hundred millionth) than had previously been attained, which remained the best achievement in the way of high vacua until within a few years. More recent work by Professor Rood included studies on physiological optics entitled *A Color System* and *A Photometric Method Independent of Color*, using in this latter investigation the so-called Flicker photometer. This apparatus he also successfully adapted to the study of color-blindness. Like many other physicists, Professor Rood's attention was directed to the investigation of Röntgen ray phenomena, and he was able to show the regular, or specular, reflection from polished metal surfaces.

ROOKWOOD, first Baron, Sir Henry John Selwin-Ibbetson. See Selwin-Ibbetson.

ROQUE, by which name the American variation of croquet is known, attracted to its twenty-first annual tournament, held at Norwich, Conn., August 18-25, 1902, the largest number of competitors in the history of the game. The tournament, which was held under the auspices of the National Roque Association, was played in three classes, in which there were, respectively, 18, 16 and 11 contestants. The championship of the first division was won by S. L. Duryee, of Washington, D. C. (also champion in 1897), with 15 victories and 2 defeats; second, W. H. Wahley, Washington, with 14 victories and 3 defeats. In the second division, W. Hogeland, Philadelphia, was first, with 13 won, 2 lost; and H. Duryee, Washington, was second, with 13 won, 3 lost. In the third division, A. C. Robinson, of Punxsutawney, Pa., was first, and C. W. Hale, Cottage City, Mass., was second. S. L. Duryee, by defeating G. C. Cox, Malden, Mass., in 4 out of 5 games, retained the Van Wickle Badge.

ROUMANIA, a constitutional monarchy of southeastern Europe. The capital is Bucharest.

Area and Population.—The kingdom comprises 32 departments, the aggregate area of which is estimated at 50,720 square miles. According to the preliminary returns of the census of December, 1899, the population was 5,912,520, of whom 92.5 per cent. were Roumanians, 2.9 per cent. foreigners, and 4.6 per cent "aliens not under foreign protection," that is, Jews. Bucharest, the largest city, had 282,071 inhabitants. At the end of 1901 the estimated population was 6,081,572. The predominating religion is the Orthodox Greek. Education is in a backward condition.

Government.—The executive power is vested in the king, who is assisted by a ministry of eight members responsible to the lower house of the parliament. Parliament consists of the senate (120 members) and the chamber of deputies (183 members), all members being elected by popular vote. The sovereign in 1902 was Charles I., son of the late Prince Karl of Hohenzollern-Sigmaringen; he was born in 1869, elected lord of Roumania April 20, 1866, and proclaimed king March 26, 1881. The heir presumptive is Prince Ferdinand, nephew of the king, born in 1865.

The peace strength of the regular army is 3280 officers and about 60,000 men, while the territorial army numbers about 72,000 men. The war strength is about 174,000 officers and men. The navy is small, but is increasing in strength; it includes a small protected cruiser, about a dozen gunboats and coast-guard vessels, and 8 torpedo boats.

Finance.—The monetary unit is the leu, worth 19.3 cents. For the fiscal year 1900 the revenue and expenditure are reported at 200,083,576 lei and 235,488,486 lei, respectively; for 1901, 210,042,758 and 237,286,775, respectively. The budget estimates for the fiscal year 1903 balanced at 218,500,000 lei. The largest items of revenue were indirect taxes, 56,510,000 lei; state monopolies, 50,900,000; direct taxes, 43,615,000; ministry of agriculture, 23,345,000; of public works, 22,520,000; of the interior, 10,534,000. The largest estimated expenditures were for the debt, 86,441,092 lei; ministry of war, 37,720,000; of finance, 34,823,000; of public instruction and worship, 24,924,000; of the interior, 15,259,000. On March 31, 1901, the public debt amounted to 1,432,015,515 lei, and on March 31, 1902, 1,413,339,384 lei. About half of the debt has been contracted for railways.

Industries, Commerce, etc.—The principal industry is agriculture, and the leading crops are wheat and corn. In 1900 wheat production reached 19,967,900 hectolitres, and corn 29,970,400 hectolitres. (The hectolitre equals 2.838 bushels.) Wheat production in 1901 reached 25,508,840 hectolitres; barley, 8,535,925; oats, 5,828,550; rye, 3,373,650. Mineral industries are little developed, though coal, petroleum, and salt are mined to some extent. The beet sugar industry has recently gained in importance. The value in lei of imports and exports have been as follows:

	1898	1899	1900	1901
Imports	389,906,439	333,267,938	216,985,878	292,435,760
Exports	288,287,869	149,119,657	280,000,431	353,830,877

The leading imports in 1900 were textiles, etc., 141,900,000 lei, and metals and metal-ware, 47,800,000 lei. The most important export was cereals, 245,800,000 lei (172,700,000 lei in 1900). Imports from and exports to the countries of greatest trade importance in 1901 were, respectively: Germany, 84,320,000 lei and 39,468,000 lei; Austria-Hungary, 71,407,000 and 49,135,000; Great Britain, 56,426,000 and 24,439,000; Italy, 21,832,000 and 18,025,000; France, 18,801,000 and 9,848,000; Turkey and Bulgaria, 13,145,000 and 19,634,000; Russia, 6,320,000 and 6,284,000; Switzerland, 5,104,000 and 1,275,000; Belgium, 5,097,000 and 174,539,000.

Roumanian railways are owned by the state; in 1901 there were 2060 miles in operation and 930 miles projected or under construction. The telegraph lines in 1900 aggregated 4344 miles, with 11,246 miles of wire.

HISTORY.

Internal Affairs.—The policy of retrenchment initiated by the Sturdza ministry in the early part of 1901, and necessitated by the depressed condition of national industry and finance was pursued throughout 1902. The opposition accused the government of practicing unwise economy in reducing the expenditure for the operation of the railways, thus tending to make the service inefficient and travel dangerous. Dissensions within the ranks of the Liberal party were apparent in the early part of the year, when the minister of finance, Pallade, laid down his portfolio, under pressure, it was thought, of the prime-minister Sturdza (January, 1902). The latter, however, did not develop sufficient strength to risk a breach with the older wing of the Liberals, and in July a reconstruction of the ministry took place. The personnel of the new cabinet is as follows: President of the council and minister of war, Sturdza; interior, Pallade; justice, Statesco; public works, Stoicesco; public instruction and worship, Haret; foreign affairs, Bratiano; finance, Costinesco. Upon the new minister of foreign affairs seems destined to fall the leadership of the Liberal party, from which Sturdza is said to be contemplating retirement.

Secretary Hay's Note.—The condition of the Jews in Roumania was the subject of a circular note addressed by Mr. John Hay, secretary of state of the United States, on September 17, 1902, to the signatory powers of the Treaty of Berlin (1878). It has been the policy of the Roumanian government to regard the Jews as aliens, in spite of the fact that a large proportion of them have resided for hundreds of years in the country. In doing so the government has succeeded in evading the terms of the Treaty of Berlin dealing with the affairs of the newly constituted state, which declared (Article xliv.), that the difference of religious creeds shall not be made a disqualification for civil or political rights, eligibility to public office, or the exercise of any trade or profession in any locality. As a matter of fact, out of the more than 300,000 Jews in Roumania a very small number (estimated by some at about 100) have received the rights of naturalization from the chambers. Laws passed at various times exclude the Jews ("aliens") from the learned professions, from the public service, and from many other occupations. They are not permitted to own or lease land for agricultural purposes, or to carry on the trades of bakers, grocers, or innkeepers in rural districts. In those trades that are open to Jewish laborers a Roumanian employer may hire only one Jew for every two Roumanians. The colleges and secondary schools are closed to

Jewish students and the elementary schools are open to them only after all Roumanian children have been accommodated and on the payment of a fee. Anti-Jewish legislation culminated in March, 1902, in a law dealing with the organization of trade unions by the terms of which the Jews would be practically excluded from the exercise of the mechanic trades, almost the only source of livelihood left to the vast majority. Such a state of affairs has led to a large emigration to England and the United States.

In his note Secretary Hay declares that the treatment of the Jews by the Roumanian government is of interest to the United States in that by far the greater portion of those whom persecution has driven from Roumania have found a home or have attempted to settle in this country. While welcoming the voluntary immigration of all aliens who are mentally and physically fit for the duties of citizenship, the United States cannot admit as members of the community "the pauper, the criminal, the contagiously or incurably diseased. . . . The voluntary character of their coming is essential; hence we shut out all immigration assisted or constrained by foreign agencies. The purpose of our generous treatment of the alien immigrant is to benefit us and him alike—not to afford to another state a field upon which to cast its own objectionable elements." Mr. Hay then refers to the clause in the Treaty of Berlin mentioned above, and proceeds to enumerate the oppressive measures of the Roumanian government by which "the ability of the Jew to earn even the scanty means of existence that suffice for a frugal race has been constricted by degrees until nearly every opportunity to win a livelihood has been denied, and until the helpless poverty of the Jew has constrained an exodus of such proportions as to cause general concern." The result of this has been the invasion of the United States by a class of immigrants who, "made double paupers by physical and moral oppression" become a burden and a menace to the community. Interference by our government is thus justified: "The United States offers asylum to the oppressed of all lands. But its sympathy with them in no wise impairs its just liberty and right to weigh the acts of the oppressor in the light of their effects upon this country and to judge accordingly. . . . Whether consciously or not these helpless people burdened and spurned by their native land are forced by the sovereign power of Roumania upon the charity of the United States. This government cannot be a tacit party to such an international wrong. . . . The United States may not authoritatively appeal to the stipulations of the Treaty of Berlin, to which it was not and cannot become a signatory, but it does earnestly appeal to the principles consigned therein, because they are the principles of international law and eternal justice."

The note aroused much discussion in Europe, presenting as it did in tone and purpose such a marked departure from ordinary diplomatic communication. The consensus of opinion was that because of the determined position of the Roumanian government little could be effected in the way of bringing about any amelioration in the condition of the Jews. Coercion was deemed out of the question at a time when the renewal of the Triple Alliance and premonitory warnings in the Balkans made any tampering with the political balance precarious. The press of Great Britain was warm in its commendation of the spirit of the note, while expressing its doubt as to the practicability of bringing effective action to bear on Roumania. In Germany and Austria the tone of the press was in general hostile to the interference of the United States in a matter regarded as of purely European interest. The Monroe Doctrine was invoked as a cogent reason for the United States to confine its attention to cis-Atlantic interests, and the more outspoken of the journals did not hesitate to apply the *tu quoque* argument in the matter of lynch-law and other heinous crimes. The Roumanian government attempted some defense by pointing to the decree of September, 1902, mitigating the operations of the law of March, but as a matter of fact the essential disabilities under which the Jewish laborer suffered were not removed and a large emigration of skilled workers set in toward the end of the year.

ROWING, in 1902, maintained its position as one of the leading sports among the colleges and clubs of the United States, although there was no one event of particular importance. The "American Henley," so long exploited, was made to seem more probable by the formation of the American Rowing Association, having for its object the consummation of the scheme. The favorable reception of the plans submitted gave assurance that before another year ended, the first attempt to hold a regatta modeled after the English event, would be made. At the regatta of the Intercollegiate Rowing Association, held on the Hudson River at Poughkeepsie, June 21, Cornell won in all three classes. In the 'varsity eight-oared race, 4 miles, the results were as follows: First, Cornell, by 3 lengths, 19 minutes 53-5 seconds; second, Wisconsin, by 1¼ lengths; third, Columbia, by 2½ lengths; fourth, Pennsylvania, by ¼ length; fifth, Syracuse, by ¼ length; and sixth, Georgetown.

In the four-oared race, 2 miles, Cornell won from Pennsylvania by 2 lengths, in 10 minutes 43 seconds, with Columbia third. Cornell was less than a length ahead in the freshman eight-oared race (two miles), and won in 9 minutes 39 4-5 seconds. The other crews in their order were Wisconsin, Columbia, Syracuse and Pennsylvania. The annual Yale-Harvard races at New London, Conn., occurred on June 25-26. Yale won the 'varsity 4-mile event by 3½ lengths in 20 minutes 20 seconds and the freshmen (2 miles) rowed a dead heat at 10 minutes 13 seconds. Harvard won both the 'varsity and freshman four-oared events, the former (2 miles) in 11 minutes 19½ seconds, and the latter (½ mile) in 2 minutes 40 seconds.

The regatta of the National Association of Amateur Oarsmen was held at Worcester, Mass., on August 8-9, the various events being won as follows: Association single sculls, J. B. Juvenal, Philadelphia; intermediate single sculls, E. George, Boston; championship senior single sculls, C. S. Titus, New York; intermediate pair-oars, Harlem Rowing Club, New York; senior pair-oars, Vesper Boat Club, Philadelphia; intermediate double-shells, Boston Athletic Association; senior double shells, Bohemian Boat Club, New York; intermediate four-oared shells, Ariel Rowing Club, Baltimore; senior four-oared shells, Winnipeg Rowing Club, Manitoba; international four-oared shells, Winnipeg Rowing Club; intermediate eight-oared shells, Pennsylvania Barge Club, Philadelphia; senior eight-oared shells, Vesper Boat Club, Philadelphia.

Abroad at Putney, March 22, Cambridge defeated Oxford in their annual 4-mile race by 8 lengths, in 19 minutes 9 seconds. The only American entered in the Henley regatta, July 7-9, was C. S. Titus, the national champion single sculler, who competed in the Diamond Sculls event, emblematic of the world's championship. In the third round he was defeated by F. S. Kelley, of Balliol College, Oxford, who finally won the event, in 8 minutes 39 seconds.

ROYAL, Joseph, a Canadian journalist and politician, died on August 23, 1902. Born at Repentigny, Quebec, May 7, 1837, he was educated at the Jesuit College of St. Mary's in Montreal, and after journalistic experience on the staff of *La Minerve*, established *Le Nouveau Monde* in 1857, *L'Ordre* in 1859, and assisted in founding the *Revue Canadienne* in 1864. In the same year he was admitted to the bar, and from that time until 1880 continued in active legal practice. Elected in 1870 to the first Manitoba legislature, he retained his seat until 1879, at which time he entered the House of Commons. He was appointed to the lieutenant-governorship of the Northwest Territory in 1888, which post he held until 1893. In 1893 he became editor-in-chief of *La Minerve* at Montreal. He was known as a skillful advocate, a legislator particularly interested in matters of education, an exponent of Canadian political independence, and the writer of several interesting pamphlets on public affairs. He was elected to membership in the Royal Society of Canada in 1893.

ROYER, Clémence Auguste, a Frenchwoman distinguished for her studies in the natural sciences and philosophy, died in February, 1902. She was born April 30, 1830, at Nantes, of a Catholic royalist family. She spent most of her childhood abroad, and began early to devote herself to the studies in which she afterwards became famous. In 1859 she established a course for women in logic and philosophy at Lausanne, which was afterwards extended to other cities. In 1862 she published *Théorie de l'impôt ou la dîme sociale*, an essay that had divided with Proudhon, the disparager of intelligence in women, the prize offered in a public competition in Switzerland. She also contributed to the Swiss paper *Le Nouvel Economiste*. Her real reputation, however, was established by her translation of Darwin's *Origin of Species*, which she prefaced with a critique of the ultimate result of the theory of evolution, one of the most famous essays in contemporaneous French thought. She published *Origine de l'homme et des sociétés* (1869), *Les rites funéraires aux époques préhistoriques* (1876), *Le bien et la loi morale* (1881), *La Constitution du Monde* (1900). Among articles that she contributed to the leading French papers are: *Sur la Fondation d'un collège international réaliste; Sur l'Avenir de Turin; Sur le Percement de l'isthme américain; Le Lac de Paris.* She was awarded the cross of the Legion of Honor in 1900.

RUBBER. The increasing demand for rubber for manufacturing has caused considerable activity in the rubber regions of South America, which include the valleys of the upper Amazon and its tributary streams. From here comes the greater part of the rubber consumed in the United States and Europe, and new districts are being continually developed as the regions (especially the islands) of the lower river are becoming exhausted. The most promising new districts are the Acre territory and southeastern Ecuador. It is believed that the rubber forests about the many tributaries of the Amazon are practically unlimited. Bolivia, Ecuador, and Peru are now attracting the rubber gatherers on account of the fewer legislative restrictions there. The gathering of rubber is an industry entirely in the

hands of natives or residents, and it has not been feasible hitherto for the large manufacturing companies to take a hand in its collection. During 1902 it was asserted that the United States Rubber Company had subscribed largely to the stock of a company formed to exploit rubber-gathering in the Acre district, and the result of this slight entering of a manufacturing company into the business of collecting the raw material is awaited with interest. Conditions in Acre, however, are most uncertain. (See BOLIVIA.) For the rubber production of the Amazon valley in 1900, see BRAZIL (paragraph Industries and Commerce). As showing the development of the rubber industry in South America, the following table, giving the production in metric tons for six successive years, is of interest:

YEAR.	To United States.	To Europe.	Total.
1896–1897	9,848	12,368	22,216
1897–1898	11,422	10,796	22,218
1898–1899	12,398	12,848	25,246
1899–1900	12,474	14,407	26,881
1900–1901	15,194	12,486	27,680
1901–1902	14,066	15,931	29,997

The United States enjoys a large export trade in manufactures of rubber, which during the calendar year 1902 aggregated $3,815,754, as against $3,326,016 in 1901. The principal item of this export business is rubber boots and shoes, but hose, belting, packing, and other articles figure to a large extent. Great Britain is the chief customer for American rubber goods, her yearly takings exceeding a value of one million dollars.

While gutta-percha is quite distinct from India rubber, it has a certain relation on account of being used for a number of similar purposes. Attention is now being paid to the balata tree, which grows in Brazil along the Amazon River. The balata, or bulle tree (Minsaps balata) has long been a source of gutta-percha in the Guianas and the valley of the Orinoco, but these trees have been exhausted. The industry was extremely profitable, though it requires experienced men to bleed the trees and collect the sap. One man, however, can produce in a day as much gutta-percha as twenty men can extract rubber, each collector or bleeder being able to produce between 40 and 50 pounds of gutta-percha.

RUNKLE, JOHN DANIEL, an American educator, died at South West Harbor, Maine, July 8, 1902. He was born in Root, Montgomery County, N. Y., October 11, 1823, and, after graduating from the Lawrence Scientific School of Harvard in 1851, was appointed to the staff of the *American Ephemeris and Nautical Almanac,* a post which he held until 1884. He established in 1858 the *Mathematical Monthly,* which he edited until its publication was discontinued in 1861, and was one of the founders of the Massachusetts Institute of Technology, of which he was acting president from 1868 to 1870, and president from 1870 till 1878. As Walker professor of mathematics, he directed that department from the opening of the institution, except when occupied with the duties of president, and was professor emeritus at the time of his death. It was through his efforts that the laboratory system was instituted and the consequent advance in the work of mining and metallurgy made possible. Influenced by the plans of the Moscow Imperial Technical School, exhibited at the Centennial Exposition of 1876, he established the department of mechanic arts, which was greatly aided at its foundation by the Czar of Russia. Besides many articles and addresses upon educational topics, he published *Elements of Plane Analytic Geometry* (1888).

RUSSELL, SOL SMITH, an American comedian, known for his quaintly artistic impersonations, died in Washington, D. C., April 28, 1902. He was born in Brunswick, Me., June 15, 1848, was a Union drummer-boy from the outbreak of the Civil War until 1864, and then at Cairo, Ill., left the troops to play the orchestra drum, sing, and take unimportant parts in a small theatre. Subsequently he passed from town to town, singing, playing on various instruments, and reciting monologues; acted, chiefly in low-comedy rôles, in St. Louis and Cincinnati; and in association with the Berger bell-ringers gave songs and impersonations. From lyceum entertainment he turned to the drama, in 1874 became a member of the Augustin Daly organization, and first appeared as a star in 1880, in *Edgewood Folks,* presented upwards of 1500 times. His talents were restricted, most nicely adapted to parts combining the whimsical and the gentle, and shown to best advantage in E. E. Kidder's *A Poor Relation* and *Peaceful Valley,* especially written for him. With the former of these he was commonly identified. His delicate and highly-finished art resulted in an apparent ease and simplicity. He won a large and distinct clientele, was known as a happy curtain-speaker, and occupied a high place in the estimation of the American theatre-going public. In Minneapolis, where he resided, he was also esteemed as a public-spirited citizen.

RUSSIA, an empire in Europe and Asia comprising one-seventh of the land surface of the globe. The capital is St. Petersburg.

Area and Population.—The total area is stated at 8,660,394 square miles, of which 2,095,616 are in Europe and 6,564,778 in Asia. According to the census of February 9, 1897, the population of European Russia (including Finland), was 106,264,136, and of Asiatic, 22,697,469—total, including 42,909 Russians in Finland, Bokhara, Khiva, and in the navy abroad, 129,004,514. There were 89,606,106 Orthodox Greeks, 13,889,421 Mohammedans, 11,420,227 Roman Catholics, 6,213,237 Protestants, 1,224,032 other Christians, and 5,189,401 Jews. St. Petersburg has about 1,500,000 inhabitants, and Moscow over 1,000,000.

Government.—Russia is an absolute hereditary monarchy, of which the whole executive, legislative, and judicial power is vested in the czar, or emperor. The emperor in 1902 was Nicholas II., who was born May 18, 1868, and succeeded his father, Alexander III., November 1, 1894. The heir-presumptive was the Grand Duke Michael, born December 4, 1878. The administration of the empire is intrusted to four boards, or councils, whose members are appointed by and are responsible to the emperor. These boards are: (1) The council of state (reorganized in 1901), whose principal function is that of a consultative body on legislative matters; (2) the senate, by which all new laws must be promulgated, and which is also the supreme court of justice of the empire; (3) the holy synod, which has entire control of ecclesiastical affairs; (4) the cabinet ministers. In 1902 the principal ministers were: Count V. N. Lamsdorff, foreign affairs (appointed in the fall of 1900); Vyacheslav K. de Pleve, the interior (appointed April, 1902); Gen. A. N. Kuropatkin, war (appointed December, 1897); Vice-Admiral P. P. Tyrtoff, navy (appointed July, 1896); Sergius J. de Witte, finance (appointed in 1892); N. V. Muravieff, justice (appointed in 1893); Dr. G. Sänger, public instruction (appointed April, 1902); Count Sergius Schermetieff, procurator of the holy synod (his appointment in November, 1902, to take effect at the beginning of 1903); A. S. Yermoloff, agriculture (appointed in 1893).

The empire is divided into 79 governments, or provinces, some of which are united into general-governments; all are administered, under the emperor, by governors and their subordinates, holding office through imperial appointment. In local affairs there is some degree of popular autonomy.

Religion and Education.—The established church, of which the emperor is the head, is the Græco-Russian, officially known as the Orthodox-Catholic Faith. Practically the head of the church is the procurator of the holy synod. All religious bodies, with the exception of the Jewish, may receive state aid.

For the most part the educational system is under the control of the minister of public instruction, but numerous specialistic schools are under other departments. In 1898 the elementary schools in the empire numbered 78,699 with 4,193,594 pupils, of whom 3,136,163 were males. The estimated enrolment in the middle schools, including technical, agricultural, etc., is 260,000, and in the universities 16,500.

Army and Navy.—All able-bodied males, with a few exceptions in the case of certain professional men, are liable to military service from their twenty-first year. The Russian army is the largest in the world. The peace strength of the active army in 1902 was stated as follows: Infantry, 24,176 officers and 726,811 men; cavalry, 5171 officers and 127,772 men; artillery, 5978 officers and 171,585 men; engineers, etc., 1307 officers and 33,912 men; total, including others not classified above, 38,412 officers and 1,076,458 men. The war strength is approximately 75,000 officers and 4,500,000 men. The military budgets for 1901 and 1902 amounted to 324,024,871 and 322,638,538 rubles respectively. See MANŒUVRES.

Russia maintains three separate fleets—one in the Black Sea, where by international agreement it must stay, one in the Baltic, and one, the largest and most important, in the Pacific and the China Sea; in addition there are squadrons in the White and Caspian seas. Exclusive of non-effective craft, training ships, etc., the completed vessels of the Russian fleet and those building or provided for, respectively, were stated to be as follows in March, 1902: First-class battleships, 2 and 7; second-class battleships, 15 completed; third-class battleships, 2 completed; cruisers (armored, protected, or belted), 15 and 9; coast-defense vessels, 7 and 1; gunboats, old armor-clads, and armored gunboats, 46 and 2; destroyers, 21 and 13; first-class torpedo boats, 45 and 6; in addition there were 41 second-class and 101 third-class torpedo boats, a few small gunboats on the Caspián, and 50 submarine boats afloat or projected. The naval complement is over 40,000 officers and men. The naval budget for 1901 amounted to 93,597,666 rubles, 98,318,984 rubles for 1902, and 104,417,791 rubles for 1903.

Finance.—The monetary standard is gold and the unit of value the ruble, worth 51.5 cents. For 1900 revenue and expenditure balanced at 1,889,216,137 rubles. Ordinary revenue amounted to 1,704,128,506 rubles, extraordinary revenue 32,568,983 rubles, and the additional revenue raised to meet the extraordinary expenditure

152,518,648 rubles. Ordinary expenditure was 1,555,427,622 rubles, and extraordinary expenditure 333,788,515 rubles. The total estimated revenue and expenditure for 1901 balanced at 1,788,482,006 rubles, and for 1902 1,946,571,976 rubles. For 1901 the ordinary estimated revenue and expenditure amounted to 1,730,096,006 rubles and 1,656,652,556 rubles respectively; for 1902, 1,800,784,482 rubles and 1,775,913,481 rubles respectively. For the latter year the chief sources of ordinary revenue were estimated to yield the following amounts: State monopolies, 521,724,000 rubles; state domains, 508,414,998; redemption of land, 86,431,000. The largest estimated expenditures (ordinary) for 1902 were: Communications, 435,547,758 rubles; finances, 335,198,430; war, 322,638,537; interest on the public debt, 258,816,418; navy, 98,318,984; department of the interior, 98,187,205. There was an estimated extraordinary expenditure of 165,658,495 rubles for the construction of new railways and railway equipment. The total public debt on December 31, 1901, is reported at 6,497,300,000 rubles.

Industries and Commerce.—Russia is preëminently an agricultural country and more than three-fourths of the inhabitants subsist by tillage of the soil. Nearly 37 per cent. of the soil in Russia is owned by the state and the imperial family, 35 per cent. by the peasants, and 28 per cent. by landed proprietors and towns. The leading products are rye, barley, wheat, oats, buckwheat, and millet. Rye is the great staple of the country, the annual production varying from 750,000,000 to 950,000,000 bushels. The cultivation of flax is an important industry and provides one of Russia's leading articles of export. Though primitive methods of farming prevail over large areas, progress in the methods of scientific cultivation has been furthered by government and private initiative. In 1902 there were 68 experimental farms under the ministry of agriculture. Russia, including Poland, Finland, and the Caucasus, has 550,000,000 acres of forest, 64 per cent. of which in European Russia is owned and cared for by the state. There are extensive mineral deposits both in European Russia and in Siberia. The iron-smelting industry in the Urals is increasing rapidly, the output amounting to 797,000 tons in 1900 and to 2,807,972 in 1901. Petroleum, however (in the Batum-Baku districts), constitutes the most important mineral product, and the industry is advancing with giant strides from year to year. Russia now produces about 35 per cent. of the total output of the world, and has entered into formidable competition with the United States in the Asiatic market. Though manufactures are still in their infancy, Russia may be said to have entered upon an era of important industrial development. Foreign capital, Belgian and French especially, has found a profitable field in the country. With the development of manufactures there has been a great increase in the urban population, especially in the Baltic provinces, Poland, and parts of southern Russia. The result has been a state of affairs not unlike that felt prevailing in England after the industrial revolution—the sudden rise of villages into large towns with the consequent increase of disease, crime, and immorality due to lack of sanitation and the close herding of the working population. The industrial development has also been the cause of important political development, in that it has given rise to a large urban proletariat whose struggle for the improvement of their economic and political condition has been the cause of grave anxiety to the government.

In 1901 the imports were valued at 523,288,000 rubles, as compared with 572,496,000 rubles in 1900. The exports, on the other hand, increased from 688,552,000 rubles in 1900, to 729,565,000 rubles in 1901. The chief articles of import, in the order of their value, are: Machinery, cotton, tea, oil, metal, manufactures, gums, wine, soap, chemicals, and iron. The leading commodities exported are cereals and other grains (more than 40 per cent. of the total exports), timber, flax and flaxseed, petroleum, eggs, and sugar. The foreign commerce, in rubles, in 1901 was distributed as follows, the first figures representing imports to Russia, the second, exports from Russia: Germany, 200,218,000 and 179,413,000; Great Britain, 103,219,000 and 156,316,000; Netherlands, 8,751,000 and 84,628,000; France, 26,852,000 and 61,200,000; United States, 64,688,000 and 3,986,000; Austria-Hungary, 23,685,000 and 30,270,000; Italy, 10,424,000 and 37,911,000; Belgium, 8,412,000 and 20,965,000; Denmark, 4,738,000 and 29,914,000; Turkey, 7,309,000 and 21,349,000. In 1901 food-stuffs constituted 60 per cent. of the exports and raw products 35 per cent.

Communications.—At the beginning of 1902 there were in Russia 30,142 miles of railway, of which 18,505 miles were owned by the state, 10,577 miles by private companies, and 1060 miles by local communities. (For the Trans-Siberian Railway, see SIBERIA; and for the railway across Turkistan from Orenburg to Tashkent, see CENTRAL ASIA, RUSSIAN.) In 1900 there were 102,397 miles of telegraph line with 308,450 miles of wire, two-thirds of the wire mileage being the property of the state. The number of post-office stations in 1900 was 6029. The cost of operating the state system of posts and telegraphs was 142,435,000 rubles, and the gross receipts were 276,553,000 rubles.

HISTORY.

Student Outbreaks.—The situation in Russia during 1902 was characterized by semi-revolutionary outbreaks and widespread agricultural and industrial depression. In the early part of the year the disorders among the students were renewed, and the student participants were joined by the discontented peasantry. The discontent among the students was occasioned by the stringent restrictions upon a hitherto fairly wide academic liberty. Both professors and students demanded a return to the former liberal régime, the students in particular insisting upon the right of forming associations according to the German custom. A series of encounters took place between students and workingmen on the one side and the police and military authorities on the other, resulting in the death or injury of a large number of the participants on both sides. The disturbances were met by the adoption of vigorous measures on the part of the government. Several of the universities, notably those of Kieff, Kharkoff, and St. Petersburg, were closed, while some twenty cities and towns, in which there are higher educational institutions, were placed under semi-military control. Many of the students were expelled from the universities and drafted into the military service, while many others together with their coadjutors were arrested and imprisoned or banished to Siberia, or other remote places. From the universities the discontent spread to the masses, so that students and workingmen came to make common cause against the government. In fact, the two movements became merged, so that in many communities it was difficult to tell whether a given disturbance was caused by the students aided by the working classes or *vice versa*. Some of the most notable of these occurrences took place at Moscow and St. Petersburg in March. As a result of the disturbances at Moscow it was reported that 95 students were exiled and 500 more sent to prison at Archangel. In June the czar addressed a rescript to M. Sänger, the minister of education, expressing the earnest hope that the students would obey the law and cease their disturbances. In the course of the rescript he said: "For the sake of the nation intrusted to my care an end must be put to the disorders which are a disgrace to science and to the universities, once the just pride of Russia, and which cause the ruin of so many young lives dear to the fatherland and to me." In August the czar ordered the liberation of the students imprisoned for participation in the disturbances at Moscow in March. During the course of the year provision was made for disciplinary courts to be established for all the high schools under the jurisdiction of the minister of education. The courts are to be composed of university professors and will judge all cases of disturbances in the high schools between students and professors as well as various student offenses.

Agrarian Disturbances.—The unrest among the laboring classes was accentuated by the existing political régime and the general economic depression, which in some localities amounted to actual impoverishment. The chief seat of the agrarian disturbances was the central portion of Russia—the "Black Earth" region. Here grain is the chief staple, but on account of the decrease in the productivity of the soil barely more than enough could be produced by the peasants to pay taxes, which in recent years have been increased. In many cases they were compelled to sell the grain intended for seed in order to comply with the government demands. In May whole districts of central Russia were reported as famine-stricken. As a result of hunger and destitution an epidemic of scurvy broke out, 6815 cases being reported in the villages of the Minzelinsk district on April 14, as against 2723 cases reported on March 14. The unrest and destitution soon began to manifest itself in strikes, riots, disorders of various kinds, and murderous attacks upon officers of the government. In April serious riots broke out in Kharkoff, Poltava, and adjacent districts, being precipitated by a forged proclamation of the czar purporting to authorize the distribution of lands among the peasants. Thousands of peasants took the field in disorderly masses, drove the landed proprietors to the towns, attacked and plundered their estates, fought with sticks and stones the troops sent to disperse them, and terrorized the population generally. They were finally dispersed, but not until many had been killed or wounded. On May 1 the whole labor population in the district between Moscow and Vladimir was reported to be in revolt and martial law was proclaimed in five districts of Poltava. At Rostoff on July 1 a crowd of workmen broke into several manufacturing establishments, destroyed the machinery, and plundered the people of the community. The rioters were fired upon by the soldiery and many were killed.

The opposition to the repressive measures of the government manifested itself in frequent attacks upon the higher officials, who were regarded as chiefly responsible for the distressing condition of the peasantry. Early in April an attempt was made to assassinate the chief of the Moscow police. This was followed on the fifteenth of the same month by the assassination of M. Sipiaguin, minister of the interior, while he was entering the Marinski Palace, St. Petersburg, to attend a meeting of the committee of ministers. The assassin was one Balmascheff, who the year before had

been punished for participation in the disturbances at Kieff, where he was a student at the university. Sipiaguin was regarded as the embodiment of the spirit of reaction and had upheld a policy of vigorous coercion in dealing with the outbreaks. He was succeeded by M. de Plehve, secretary of state for Finland, a distinguished official, who is believed to sympathize with the ideas of his predecessor. On May 19 an attempt was made to assassinate General von Wahl, governor of Vilna, who, it was reported, had been condemned to death by the Central Revolutionary Committee for cruelties, that had been perpetrated on political prisoners as a result of his instructions. He escaped with only slight wounds in his left hand and right foot. On August 11 Prince Obolensky, governor of Kharkoff, was fired upon in the Tivoli Gardens, and received several bullet wounds. He was an object of hatred to the peasantry on account of his activity in suppressing riots among the peasants and for the commendation he had received from the czar for his services in this connection. The assassination of the minister of the interior was followed by the resignation of General Vannovsky, the minister of education, appointed to succeed Bogoliepoff, who was assassinated February 27, 1901. Vannovsky's resignation was attributed to the failure of his efforts to secure educational reform and to win the students from their revolutionary agitation.

As a means of temporary relief to the peasantry the czar issued an order on June 15, 1902, remitting arrears of taxes to the amount of 25,000,000 rubles. As compensation for the landed proprietors of Kharkoff and Poltava who suffered losses on account of the disturbances mentioned above, a grant of 800,000 rubles was made from the imperial treasury.

Industrial Crisis.—In September, 1902, an industrial crisis was reached in Russia and the collapse of many large industrial undertakings was reported, particularly in the south and southeast. Strikes of workmen occurred in many places, thus increasing the seriousness of the situation. In November it was reported that 4500 workmen employed in the shops of the Vladikavkas Railway at Rostoff-on-Don ceased work, demanding shorter hours, a higher wage, and the dismissal of some of the managers. Their action, however, was not attended by any disturbance. The strikers were informed that their demands could not be considered and they were requested to resume work, but under the incitement of a socialist, democratic, and labor committee they refused to work and continued to hold meetings. A body of Cossacks attempted to disperse them, and one officer and nine men were wounded. Finally the strikers were fired upon by the Cossacks and a number were killed and wounded. The workmen at Ticharetzkoja station struck on November 28, 1902, advancing the same demands as the Rostoff men. Refusing to disperse they were attacked by a body of Cossacks and two of their number killed, 19 being wounded; 102 strikers were arrested. On December 24 the condition of the families of the Rostoff strikers was reported to be pitiable in the extreme. Thousands who were dependent upon them were described as being on the verge of starvation. About the same time bread riots were reported from the Ural districts, where thousands of persons were idle on account of the closing of the iron works.

The Grimm Incident.—An incident of note in connection with Russian military affairs was the discovery early in 1902 that the plan of attack agreed upon between Russia and France in a secret military convention and to be followed by the two powers in case of hostilities with Germany had become known to Germany through collusion on the part of some member of the military intelligence bureau at Warsaw. Colonel Grimm, a trusted officer, was suspected of selling the plans to Germany and was arrested. After the evidence against him became indisputable, he made a full confession, and upon trial by court martial was condemned to degradation from his rank, sentenced to twelve years penal servitude in the mines of Sakhalin, and, should he survive, to pass the remainder of his life in some village of Siberia north of Irkutsk. It was estimated that the changes in the fortifications etc., made necessary by his treachery would cost the Russian war department about 11,000,000 rubles.

Agricultural Committees.—Toward the end of the summer of 1902 the government instituted a movement for the study of the causes of the agricultural depression by the appointment under the direction of M. Witte, finance minister, of local agricultural committees to investigate and report upon the needs of agriculture. These committees set to work to collect material for the central committee under the presidency of M. Witte and drew up a long list of social, financial, and even constitutional reforms, which they considered to be necessary for the improvement of the agricultural situation. They condemned the bureaucratic system, and in fact the entire social and political condition of Russia and asserted that the financial policy of the government was opposed to the true interests of the country and especially of the rural population. They charged M. Witte with encouraging a "hot-house industry" at the expense of agriculture and with imposing needless burdens of indirect taxation, which fall with especial severity upon the peasantry. In

regard to agricultural improvement, the committees took the ground that reform could not be attained through technical measures or measures for the encouragement of particular branches of production, but that the chief remedy lay in a more equitable system of taxation and in the development of general education. Late in December it was announced that notable reforms would soon be undertaken.

Royal Visits.—During the summer of 1902 the czar was the recipient of visits from several European sovereigns. The first of these was the visit of President Loubet, of France, accompanied by M. Delcassé, in May. They were received on board the yacht *Alexandra,* May 20. They then proceeded to Peterhof and St. Petersburg. Their reception was notably cordial. In July the czar received, at Peterhof, the king of Italy, accompanied by his foreign minister, Signor Prinetti. It was reported that several matters of international interest, such as disarmament and the Balkan question, were discussed. On August 6, the czar received the German emperor at Reval where they witnessed a series of manœuvres of the Russian fleet.

Other Affairs.—In July the Russian government through M. Witte, the finance minister, proposed to the signatory Powers of the Brussels Sugar Convention that the whole subject of illegitimate international competition be discussed by the several governments concerned. To this proposal there was no favorable response, and M. Witte then suggested that the Powers come to a mutual agreement by which tariffs should be increased on trust-made goods.

The elaborate programme of M. Witte for the encouragement of Russian shipping interests deserves mention. His scheme provides for subsidizing the Russian volunteer fleet and to grant it exemptions from taxation and other privileges on condition that it maintains a regular traffic beween Russia and the Far East, and complies with certain rules prescribed by the government. The government, furthermore, agrees to advance a liberal amount for construction, maintenance, and insurance provided certain conditions with reference to the use of Russian fuel and the carriage of Russian products are observed. An incident of European international interest was the passage through the Dardanelles to the Black Sea in September, of four Russian torpedo boat destroyers. The Porte remonstrated that the act was in violation of treaty obligations as well as the public law of Europe. The Russian government, on the other hand, defended its action on the ground that the vessels were not destroyers at the time they passed through the straits because they flew the commercial flag and had no armament. See ARBITRATION, INTERNATIONAL; CENTRAL ASIA, RUSSIAN; CHINESE EMPIRE; FINLAND; MANCHURIA; PERSIA; and SIBERIA.

RUSSIAN ORTHODOX CHURCH. See GREEK CHURCH.

RUTE, MARIE STUDHOLMINE BONAPARTE RATAZZI DE, a French woman of letters, died February 6, 1902, at Paris. She was born about 1830 at Waterford, Ireland, and was the daughter of Sir Thomas Wyse, former British ambassador at Athens, and of Lætitia Bonaparte, the eldest daughter of Lucien Bonaparte. In 1850 she married Frédéric de Solms, a rich Alsatian, who obtained a separation from her when her political views resulted in her exile from Paris. She did not return until 1860, and in the meantime lived in Savoy and at Nice, and founded a journal, *Les Matinées d'Aix,* to which she contributed a quantity of verse and prose. She was one of the first women journalists. After her return to Paris she contributed to *Le Constitutionnel,* with which Sainte Beuve was then connected, and to *Le Pays* and *Le Turf.* She became a figure in the artistic and literary world, and attracted to her salon the most brilliant men of the Second Empire, including Hugo, Rochefort, Lamennais, Sue, and About. In 1863 she married the Italian statesman Urbain Ratazzi, who died in 1873. Besides writing many novels, she founded *Le Courrier de Florence* and *Les Matinées italiennes,* to which she contributed under various pseudonyms, among the best known of which were "Baron Stock" and "Louis Kelner." In 1877 she married M. de Rute, a deputy to the Spanish Cortes. *Les Matinées espagnoles* now took the place of *Les Matinées d'Aix.* She was better known to the public as a figure in literary circles than as an author. During the last few years of her life she edited *La Nouvelle Revue Internationale.* Among her books are: *Le Mariage, ou l'Avenir du Portugal* (1862); *Les Mariages de la Créole* (1864); *Le Piège aux Maris* (1865); *La Méxicaine* (1866); *Le Chemin de Paradis* (1867); *Les Soirées d'Aix-les-Bains,* in prose and verse (1865); *Nice la Belle* (1870); *l'Ombre de la Mort* (1875). In 1881 she edited *Ratazzi et son Temps,* a tribute to the part her husband played in Italy.

RYE. This cereal gave a high yield per acre in the United States in 1902, which made the total production larger than that of any previous year. The total acreage was nearly 2,000,000 acres, and the aggregate production was 33,630,592 bushels, valued at $17,080,793. Although one of the minor crops of this country, its cultivation is very widely distributed. Pennsylvania and Wisconsin produced the largest amounts—about 6,000,000 bushels each; the other leading rye-growing States were Nebraska, New York, Michigan, Minnesota, Illinois, Iowa, New Jersey, and Kansas,

in the order named. The average yield was 17 bushels per acre, as compared with 15.3 in 1901, 15.1 in 1900, and 14.4 in 1899.

The world's production of rye in 1901, as compiled by the United States Department of Agriculture, was 1,448,072,000 bushels, against 1,594,019,000 bushels in 1900 and 1,616,997,000 bushels in 1899. Russia, the largest rye-producing country, furnished 754,925,000 bushels of the 1901 crop; Germany, 321,350,000 bushels; Austria-Hungary, 120,521,000 bushels; France, 62,366,000 bushels; Japan, 35,000,000 bushels; and the United States, 30,345,000 bushels. The 1902 crop in Russia is estimated at 919,000,000 bushels, an increase of nearly 22 per cent. over the previous year, and nearly 15½ per cent. in excess of the five-year average. Final returns for the other principal rye-growing countries are not yet available.

The exports of rye from the United States during the fiscal year ended June 30, 1902, are reported as follows:

Countries.	Bushels.	Value.	Countries.	Bushels.	Value.
Germany	918,198	$559,018	Denmark	170,894	$106,337
United Kingdom	650,567	381,431	Canada	167,880	95,042
Belgium	552,945	293,756	Other countries	24,984	14,602
Netherlands	212,395	131,304			
			Total	2,697,863	$1,581,491

There were practically no imports of this grain, the few bushels reported probably being for seed.

SABIN, Dwight May, a former senator from Minnesota, died in Chicago, Ill., December 23, 1902. He was born in Manlius, Ill., April 25, 1845, but removed to Minnesota in his youth. In 1871 he entered the State legislature, where he remained until he became United States senator in 1883. From 1878 to 1884 he was a member of the National Republican Committee, and was its chairman from 1882 to 1884. During his term as senator he was a member of the committee on Indian affairs, and was chairman of the committee on railroads. He retired from public life in 1889 and engaged in extensive lumbering and railroad operations in Minnesota.

SAINT ANDREW, BROTHERHOOD OF, a society in the Protestant Episcopal Church, founded in 1883 for the spread of Christianity among young men. Since its organization, the Brotherhood has established 1714 chapters, 1167 of which are now active. Of these, 659, with 7152 members, were reported at the seventeenth annual convention, which was held in October, 1902, in Boston. In the Junior Department, reports were made by 239 chapters, having more than 3000 members. The total receipts by the Brotherhood office were $18,479. In 1903 the convention will meet in Denver, Col. The official organ of the order is the *St. Andrew's Cross.* Organizations similar to the Brotherhood of St. Andrew are found in Anglican churches in various parts of the world. President, H. D. W. English; general secretary, Hubert Carleton; headquarters, Pittsburg, Pa.

ST. CHRISTOPHER, or ST. KITTS. See Leeward Islands.

ST. LOUIS EXPOSITION. See Louisiana Purchase Exposition.

ST. LUCIA. See Windward Islands.

ST. VINCENT, one of the British Windward Islands, has an area of 132 square miles, and a population (1901) of 47,548. Kingston, the capital, has a population of 4547. The revenue and expenditure in 1901-02 were respectively £26,612 and £29,572. The imports show a decline from £96,191 in 1900 to £74,919 in 1901, and the exports, consisting largely of sugar, coffee, spices, and rum, a decline from £97,768 to £51,987 in the same period.

Eruption of La Soufrière.—After a long period of quiescence the volcano La Soufrière burst into violent activity on May 7, 1902, the day preceding the outbreak of Mont Pelée. Steam, hot ashes, and lapilli were ejected from the crater in enormous quantities. About one-third of the total surface of St. Vincent was buried beneath the rock fragments or subjected to the withering effects of steam which rolled in great clouds down the volcano's sides. The loss of life (officially estimated at 1350) was comparatively small, as there was no thickly populated area like St. Pierre, within reach of the devastating forces; many passed through the storm unscathed, while several hundred were injured more or less severely by the hot ashes. At Georgetown, the largest town in the vicinity of the volcano, the buildings were crushed and otherwise damaged, but no fatalities were reported. The small loss of life was doubtless due in part to the fact that the inhabitants took timely warning from the preliminary rumblings and removed to the more remote districts. In 1718 there had been a terrific explosive eruption which covered the whole island with volcanic débris. A second and more devastating outbreak occurred in 1812, and

resulted in the formation of a new crater; it was characterized by dense clouds of smoke and ashes ejected with greater force, perhaps, than was exhibited in 1902.

Sequence of Events.—It is not known definitely when La Soufrière first gave warning of approaching activity. As far back as April, 1901, earthquakes became noticeably frequent in St. Vincent, and in December of that year rumblings were heard from the direction of the mountain. In April, 1902, the indications assumed a more pronounced form. In anticipation of the outburst many of the people living on the west coast abandoned their homes. This region was regarded as particularly dangerous owing to the easterly winds which it was thought would carry the ejecta westward from the crater; but subsequent events showed that the destructive agencies accomplished their work equally well on the eastern side of the island. The first visible sign of activity according to E. O. Hovey (*The National Geographic Magazine,* December, 1902) was observed in the afternoon of May 6, when puffs of steam and smoke began to rise from the crater. Light eruptions occurred after short intervals of quiescence during the evening and with increasing intensity throughout the night. The next morning the volcano was playing almost continuously, sending out great smoke clouds which rose five or six miles in the air; while lightning flashed across the column and thunders mingled with the roar from the fiery furnace. At two o'clock in the afternoon of May 7 the volcano had developed its full energy. Dense masses of steam and ashes hung over the mountains, completely hiding the summit and sending out horizontal blasts that swept over the land with tornadic violence. The shower of red-hot stones was irresistible. Rock fragments six inches in diameter were thrown to a distance of five miles from the summit. Within a brief time the entire northern part of St. Vincent was covered with a gray mantle a foot or more thick, and every vestige of the luxuriant foliage had disappeared. The eruption continued with unabated vigor during the rest of the day, and then gradually subsided. On May 18 there was a brief period of activity, which was followed on September 3 by an outburst almost as destructive as the first.

The Devastated Area.—The region laid waste by the eruption comprised practically the entire northern portion of the island within a southern limit that is distant about six miles from the crater. Over this area measuring about 46 square miles, a layer of volcanic dust and lapilli was spread to a depth of several feet, the heaviest accumulations being in the stream valleys which lead down from the mountain to the sea. At Georgetown, on the eastern coast, over five miles in an air line from the summit, the ash mantle was about two feet thick, and this may be taken as the minimum limit in northern St. Vincent. The valleys of the Rabaka Dry River on the east side and of the Wallibu, Trespé, and Rozeau on the western slopes were almost completely filled with débris. At Kingston on the southern coast, 12 miles from La Soufrière, the streets were covered to the depth of an inch. Wallibu and Richmond villages lying west of the volcano suffered complete annihilation, the former by a landslide which carried it into the sea, and the latter by the heavy fall of dust ranging from five to twenty feet in thickness. In the city of Georgetown the roofs and windows were shattered and the streets were obstructed by heaps of ashes and stones.

Phenomena of the Eruption.—One of the peculiar features of the volcanic activity was the steam blasts which swept down from the crater. They were not localized like the hurricane that visited St. Pierre, but extended radially and followed the slopes of the mountain on all sides. Their effects were witnessed principally in the uprooting and breaking of trees, and in the displacement of heavy timbers and stonework. The steam was heavily charged with dust which, moving with great velocity, acted like a sand-blast, scouring exposed cliffs and curving the roots of trees into fantastic shapes; it was sufficiently hot to wither and char all vegetable matter with which it came in contact. There is little doubt but that these horizontal blasts were due to an expansion of the vertical column either owing to the pressure of the superincumbent mass or to the great density of the heavily dust-charged steam.

No molten lava was ejected from the volcano. The solid material consisted of angular rock fragments varying in size from the finest dust to masses several feet in diameter and weighing many tons. All of the rock material was highly heated, but owing to its refractory (andesitic) nature it hardened before leaving the volcanic conduit; for the same reason also there were no true volcanic bombs such as are found in the ejecta of Vesuvius and Mauna Loa. In some instances the fragments were partially fused when thrown into the air and assumed a rudely spherical form, but there was not sufficient plasticity to develop the spirally twisted projections which mark the typical volcanic bombs. The explosive nature of the eruption and the absence of lava flow are in accordance with the general principle to which volcanoes of this character conform. As the molten material is forced upward into the chimney away from the central heat it becomes rigid and imprisons the accom-

panying gases and vapors until by expansion or explosion the latter develop such force as to shatter the lava plug and to throw the fragments out of the crater.

The largest quantity of stones and ashes fell on the eastern slopes of the mountain, where also the greatest loss of life occurred. The apparent feeling of security among the inhabitants of this region previous to the eruption illustrates the futility of attempting to forecast the effects of volcanic cataclysms. When the outburst attained its greatest violence the cloud of ejecta rose through the region of the atmosphere influenced by the easterly trade winds into the upper air currents which transported the material to windward; dust fell in large quantities as far east as the island of Barbados, 90 miles from St. Vincent, and its presence was reported by ships at localities 275 miles distant.

There were heavy mud flows in the stream channels leading down from the mountain. A torrent of mud and boiling water was brought down by the Rabaka Dry River shortly before the great outburst on May 7, which resembled the flood that rushed down the Rivière Blanche near St. Pierre. It may have been due to the overflow of the crater lake through which the volcanic ejecta passed out of the crater. The filling of the stream valleys with hot lapilli and dust gave rise to secondary eruptions simulating the effects of true outbursts. When the interior of the mass was reached by percolating waters clouds of dust-laden steam were thrown up with explosive violence, the display sometimes lasting for an hour or more.

Causes of Deaths.—The fatalities, according to Dr. Hovey, were due to the following causes: (1) Asphyxiation by hot, dust-laden steam and air; (2) burns by hot stones and dust; (3) blows inflicted by falling materials; (4) nervous shock; (5) burning by steam alone; (6) lightning strokes. The first cause is illustrated in the cases of people who took refuge in cellars where they were protected from falling stones but not from the vapors and gases. It seems probable that noxious gases were present in the steam, increasing the deadly effect of the latter, for both sulphur dioxide and sulphureted hydrogen were observed in the lighter eruptions that followed the principal outburst. In some instances the bodies of the victims were burned while the clothing apparently showed no signs of charring—facts indicating the agency of steam. There is no reason for assigning lightning as a cause except that the eruption was accompanied by vivid electrical displays.

For the eruption of Mont Pelée, see MARTINIQUE.

SALISBURY, third Marquis of, ROBERT ARTHUR TALBOT GASCOYNE-CECIL, premier of Great Britain, who resigned his office in July, 1902, had attained, both in general and critical estimation, the distinction of being one of the ablest British statesmen of the last half century. He was born at Hatfield, February 3, 1830, was educated at Eton and at Christ Church, Oxford, and in 1853 was elected to Parliament in the Conservative interest for Stamford. During his fifteen years' membership he manifested in regard to domestic questions the adherence to high Tory notions and traditions which has marked his entire career, and which made to the modern democratic spirit only such concessions as were necessary. Both as a parliamentary speaker and as a writer for the *Saturday Review* and the *Quarterly* he made an enviable record, and in 1866 was appointed secretary of state for India in Lord Derby's administration, but, viewing with doubt some parts of Mr. Disraeli's Reform Bill of 1867, he resigned office in that year. On the death of his father in 1868 he succeeded to the marquisate and extensive landed estates. In 1874 he again held office as secretary for India, and was soon placed in charge of important negotiations concerning the Eastern question, then acutely revived by the Bulgarian atrocities and by the danger of Russian interference against Turkey. Having been made special ambassador to the Porte, he contended for a joint guaranty by the Powers for the protection of the Slav populations of the Balkan provinces, so that they might not come under the control of Russia. Unsuccessful at Constantinople, he returned to England, and, after the Russo-Turkish war of 1877, went with Lord Beaconsfield as a plenipotentiary to the Congress of Berlin in 1878, at which the severe terms imposed by Russia on Turkey in the Treaty of San Stefano were reconsidered and nullified. In the same year he became secretary for foreign affairs, an office subsequently held by him in connection with the premiership. In 1881, after the death of Lord Beaconsfield, he was chosen leader of the Conservative party. He was twice premier during 1885-86, and afterwards in 1886-92 and 1895-1902. During his two later administrations domestic policy demanded less attention than foreign affairs, for which field Lord Salisbury was best equipped. Between 1895 and 1902 British foreign policy changed in two important respects, not only by its share in shifting the central difficulty of European diplomacy from Constantinople to China and the Far East, but by its promotion of better relations with the United States. In both these changes Lord Salisbury was the leading personal factor. His yielding of the Venezuelan difficulty to arbitration and his circumspect firmness as well as patience during the recent troubles in China, have had good results. The former strengthened the moral ties between Great Britain and the

United States, while the latter maintained in the East a position in which British trade prospects and political prestige are preserved. Lord Salisbury, while manifesting no one quality of political leadership in a very marked degree, has been deemed safe and commanding by virtue of his mental breadth and foresightedness; moreover, while often pliable on lesser issues, he has always been inflexible on great ones. In his leisure moments he has been devoted to science, especially electricity, and he is chancellor of the University of Oxford. He was succeeded as premier by Arthur James Balfour (*q.v.*).

SALT. See MINERAL PRODUCTION.

SALVADOR, the smallest American republic, lies on the Pacific coast, south of Guatemala and Honduras. The capital is San Salvador.

Area and Population.—The area of Salvador, according to a recent planimetric calculation, is 8135 square miles. According to the census of March 1, 1901, the population was 1,006,848, of whom 234,648 were Indians. The remainder were classified as "whites," though most of them are mestizos. There were 493,893 males and 512,955 females. The populations of the principal towns were: San Salvador, 59,544; Santa Ana, 48,120; San Miguel, 24,768; Nueva San Salvador, 18,768; San Vincente, 17,892; Sonsonate, 17,016; Zacatecoluca, 15,130. The prevailing religion is Roman Catholicism. Primary instruction is free and nominally compulsory.

Government and Finance.—The executive authority is vested in a president, who is elected for a term of four years and is assisted by a cabinet of four members. The legislative power devolves upon a congress of deputies. The president, in 1902, for the term ending March 1, 1903, was General Tomás Regalado. The regular army is reported to number 4000 men.

The monetary standard is silver and the unit of value the peso, worth 42.8 cents on October 1, 1901, and 38.4 cents on October 1, 1902. Revenue and expenditure in the fiscal year 1900 amounted to 6,337,729 pesos and 6,751,028 pesos, respectively. In 1901, according to the president's message to the congress (May 1, 1902), the revenue was 6,556,722 pesos and the expenditure 7,640,891 pesos; of the revenue, customs duties amounted to 4,168,564 pesos. Budget estimates for the fiscal year 1903 show revenue 5,931,420 pesos and expenditure 6,937,748 pesos.

The total public debt was reported to amount to 9,350,368 pesos at the end of 1900 and 8,325,904 pesos at the end of 1901.

Production, Commerce, etc.—The most important products are coffee, sugar, and indigo. In 1901 the coffee crop amounted to 55,600,000 pounds; the 1902 crop was estimated at 40,000,000 pounds. In 1900 imports were valued at about 6,000,000 pesos and exports 9,132,958 pesos. In 1901 imports were valued at 2,615,151 pesos gold, or 6,537,877 pesos silver with exchange at 150; the exports amounted to 10,956,045 pesos, of which 8,308,466 pesos represented coffee. Nearly a half of the coffee export is sent to France, and something less than a sixth to the United States and to Germany. The leading imports include cotton goods, alcoholic liquors, iron and steel wares, and flour.

In 1902 the general industrial and commercial condition of Salvador seemed quite satisfactory, a condition due largely to the confidence placed in the able administration of General Regalado. It seemed that for the best interests of the country Regalado should be renominated for the presidency, but, it was stated, he preferred to retire. During his administration "peace has been maintained, confidence restored, the finance of the country put on a better footing, the public schools have multiplied, and new industries, both public and private, have been established throughout the land." A compulsory arbitration treaty between Salvador and Spain was signed at San Salvador September 26, 1902.

SALVATION ARMY, an organization, dating from 1865, which conducts religious and philanthropic work among the masses. Founded in London as the "Christian Mission," the Salvation Army adopted its present name in 1878, a complete military organization having been effected by that year. It has spread rapidly, and at the present time the Army is found in Great Britain, France, Switzerland, Holland, Belgium, Scandinavia, Denmark, Finland, Germany, Italy, Canada and Newfoundland, the United States, Japan, India, Ceylon, Java, Australia, South Africa, Barbados, Jamaica, and South America. In 1880 operations were begun in the United States, where now the Army maintains 670 corps and outposts with 3024 officers and employees. The scope of its work is indicated in the following statistics: Annual expenditures for poor relief, $300,000; 210 social relief institutions with 787 officers and employees in charge, 69 workingmen's hotels, 6 women's hotels, 20 food depots, 28 industrial homes for the unemployed, 3 farm colonies, comprising 2800 acres, with 350 colonists, 5 employment bureaus, 16 second-hand stores, 20 rescue homes for fallen women accommodating 450 inmates, 3 children's homes, 4 day nurseries, 23 slum settlements in charge of 70 officers, and on the list of insti-

tutions visited, 45 prisons, 7 workhouses, and 29 hospitals. Some 3,000,000 beds are annually provided for the poor at the various institutions, and 200,000 persons are fed at the yearly Christmas dinner. The reports show 45,000 conversions annually. The English, German, Scandinavian, and Chinese *War Cry* and *Young Soldier* have 101,000 circulation weekly. The Salvation Army maintains international headquarters in London and headquarters for the United States at 120 West Fourteenth Street, New York City. The general and commander-in-chief is William Booth, London; the forces in this country are directed by Commander and Consul Booth-Tucker. The most noteworthy event of the year 1902 in the history of the Salvation Army in the United States was the extended tour of General Booth who lectured in a number of the larger cities. His arrival in this country, in some quarters greeted with warm commendation for the work of the organization which he commands, was the occasion in others of an attack on his "autocratic" rule, as evidenced by the withdrawal from the Army of several members of his family, two of whom this year joined the forces of John Alexander Dowie. See CHRISTIAN CATHOLICS.

SAMOAN ISLANDS, a group of about a dozen islands in the Southern Pacific ocean, 2800 miles southwest of Hawaii and 1800 miles northeast of New Zealand. They have an aggregate area of 1700 square miles and a population of about 38,000. The inhabitants, with the exception of about 500 Germans, English, and Americans, are Polynesian and nominally Christians. By agreement of Great Britain, Germany, and the United States in 1899, the islands are practically divided between the two latter countries. The German, or eastern portion of the group, includes the two largest islands—Savaii (area, 660 squares miles; population, 12,500) and Upolu (area, 340 square miles; population, 16,600). The latter island contains Apia, formerly the capital and chief port of the former Samoan kingdom, now the seat of the German civil governor. The estimated revenues and expenditures of German Samoa (1902-03) were 441,000 marks, of which about 170,000 marks was provided for by an imperial subvention. Trade is in the hands of German, American, and British merchants, British shipping in 1901-02 forming about six-sevenths of all the tonnage trading in the islands. Owing to a decline in copra the year 1901 was not so prosperous as the preceding one. The total imports were valued at £69,655 as compared with £80,000 in 1900, and the exports at £35,760 as compared with £50,000 in 1900.

The American or western portion of the group has a total area of less than 100 square miles, and a population of about 6000. Tutuila, the principal island (area, 54 square miles; population, 3800), contains Pago-Pago, the only good harbor in the entire group. Manua is the only other island of any considerable size in the American portion. The islands are administered under the United States Navy Department by a naval officer acting as resident governor (Commander Uriel Sabree since 1901). The commerce is insignificant, although Tutuila is very fertile, and capable of high cultivation. During 1902 the question as to the status of the American islands arose, from the attempt by the American collector of customs at Honolulu to levy duties on Samoan imports from Tutuila. The matter was referred to the State Department, and Secretary Hay held that the islands were "American territory," but no final decision was rendered as to the question in dispute. William Blackcock, the American fiscal agent, has suggested a modification in the present system of government by which the naval commander shall be limited in the exercise of his purely naval functions to the naval station proper, while he shall exercise the powers of a civil governor in the rest of the islands. A naval order of Commander Sabree prohibiting the sale of "refreshments" was said to be killing the growing tourist trade in the islands. Some sort of representation in local affairs was suggested by Mr. Blackcock for both whites and natives.

The Arbitration Decision.—On November 17, 1902, it was officially announced simultaneously in Berlin, London, and Washington that King Oscar II. of Sweden and Norway had given a decision wholly in favor of Germany in her dispute with Great Britain and the United States, involving claims resulting from military operations conducted by the last named governments in the Samoan Islands in 1899. By the Tripartite Treaty of Berlin in 1890 the United States, Germany, and Great Britain entered into an agreement for joint responsibility for the maintenance of a monarchy in Samoa. The convention constituted the chief-justice of the islands—a foreigner—a practical king-maker in case of disputed succession, and bound the signatory powers to abide by his decision. In 1898 a dispute over the succession did arise, and the chief-justice at that time happened to be an American, W. L. Chambers, who decided against the claims of Mataafa, whom German influence in Samoa favored. Malietoa, in whose favor Chief-Justice Chambers decided, prepared to enforce his claims by force of arms and civil war resulted. The Germans, through the influence of Herr Rose, the German consul at Apia, refused

to accept the decision and more or less openly abetted the Mataafa faction. The British and American authorities accepted the decision without objection. Mataafa, backed by Herr Rose, established a provisional government at Apia, declared Chief-Justice Chambers deposed, and named a German in his place. In March, 1899, the United States cruiser *Philadelphia,* and the British ships *Porpoise* and *Royalist* landed Malietoa and his forces on the island of Upolu, supplied them with arms and ammunition, and on March 15 opened fire across Apia at the Mataafa forces. A landing party of British and American marines was fired upon by Mataafa, and Lieutenant Lansdale and Ensign Monaghan, of the United States Navy, and Lieutenant Freeman, of the British Navy, were killed. As a result of the action of the British and American naval forces claims for damages amounting to over $300,000 were filed, and as no satisfactory settlement could be reached at the time of the partition treaty of 1899-1900, the adjustment was referred to the arbitration of King Oscar. In both England and the United States the decision was looked upon as extraordinary. The tripartite agreement of 1890 explicitly stated that questions of disputed succession should be referred to the chief-justice, and that upon his giving his decision "the signatory governments will accept and abide by such decision." In the face of this explicit statement King Oscar, however, declares: "We have found nothing in said general act [the tripartite agreement] or any subsequent agreement which authorizes one of the signatory powers, or a majority of them, to take action to enforce the conditions of the act, or to make the decisions of the chief-justice binding on the powers." Although there was a tendency to criticise the finding of King Oscar and in the United States it was freely declared that never again would this government agree to submit any question for decision to the sole arbitrament of a European monarch, there was no disposition either in the United States or England to refuse to accept the award.

SAMPSON, William Thomas, rear-admiral, U. S. N., and commander-in-chief of the American fleet that destroyed the Spanish squadron under Admiral Cervera off Santiago, Cuba, on July 3, 1898, was retired from active service for age, on February 9, 1902, and died at Washington, D. C., on May 5 following. He was born of Scotch-Irish parentage at Palmyra, N. Y., February 9, 1840, was appointed to the United States Naval Academy in September, 1857, and graduated at the head of his class in June, 1861. The Civil War had already begun when he left the academy, but, although he sought an appointment for active service, he was retained at the academy as an instructor. In June, 1864, he became executive officer of the ironclad *Patapsco,* of the Charleston blockading squadron, and was on board when that vessel was completely destroyed by a submarine torpedo, although he escaped unhurt. The remaining months of his war service were uneventful. Already promoted lieutenant while at the academy in 1862, he became lieutenant-commander in July, 1866. From 1865 to 1867 he was with the flagship *Colorado,* on the European station, from 1867 to 1871 at Annapolis as instructor, and from 1871 to 1873 again at sea, this time on the *Congress.* In 1874 he returned to the academy, being promoted commander in August of that year, and in 1879 was appointed to command the *Swatara* on the Asiatic station, where he remained until 1882. In that year he became temporarily superintendent of the Naval Observatory, and in September, 1886, was appointed superintendent of the Naval Academy, with the development of which his name is intimately connected. There he remained until 1890. Of his superintendency, Parke Benjamin, the historian of that institution, says: "When Commander Sampson's tour of duty at the Naval Academy ended, there remained little for anyone else to do, save to keep the standard of efficiency unimpaired." When, in 1890, the *San Francisco,* the first modern steel cruiser of the new navy, was put in commission, Sampson, who had attained the rank of captain in the preceding year, was assigned to her command, retaining it until 1892. In January, 1893, he was commissioned chief of the bureau of ordnance, and began what may be considered one of the most valuable periods of his career, and which continued until May, 1897. In this position he played a conspicuous and noteworthy part in the building of the new navy, and became recognized as one of the world's greatest authorities on ordnance. To Sampson more than to any one else was due the adoption of the superimposed turrets. Six days after the destruction of the battleship *Maine* in Havana harbor, February 15, 1898, he was appointed president of a naval court of inquiry to investigate the occurrence, and it was the finding of this court, that the *Maine* was destroyed by an outside explosion, that led to President McKinley's notable message of March 28. Sampson's long and varied service was rewarded by his appointment, on March 24, to the command of the North Atlantic squadron, for which Rear-Admiral Sicard had been incapacitated by ill-health. He was appointed acting rear-admiral on April 21, and attained the rank of commodore in line of promotion on July 3—the very date on which the long chase and blockade of Admiral Cervera's squadron culminated in its destruction by the ships under Sampson's command off Santiago, although Sampson himself was absent. After

WILLIAM THOMAS SAMPSON

the close of hostilities he served as a Cuban commissioner, was promoted rear-admiral on March 3, 1899, and in October following was assigned to the command of the Boston (Charlestown) Navy Yard, where he remained until September, 1901. The closing years of his life were clouded by the controversy between his friends and the supporters of Admiral Schley, over the question of the command of the American fleet at Santiago, the friends of the latter claiming that in Sampson's absence the credit of the victory fell to Schley. Before the findings of the Schley court of inquiry were made public, however, he was stricken with a mental malady, which eventually resulted in his death.

SAN CLEMENTE, Manuel, ex-president of the republic of Colombia, died near Bogotá, on March 19, 1902. He was born about 1812, and did not attain political prominence in Colombia until after reaching an advanced age. He was elected president in 1898, but very soon afterward opposition began to be manifested against his government on account of his enforced absence from Bogotá by reason of advanced age and ill-health. Dr. Marroquin, the vice-president, was publicly requested to assume the government. After he did so, by the *coup d'état* of July 30, 1900, San Clemente retired to the village of Villeta, where, it was popularly supposed, he was kept a political prisoner. The aged captive did not renounce his rights, and partisans soon gathered round him, though they failed to accomplish anything in behalf of his liberation and return to power.

SANTO DOMINGO, or DOMINICAN REPUBLIC, occupies the eastern portion of the island of Haiti. It has an area of 18,730 square miles, and a population officially estimated in 1888 at 417,000, consisting largely of mestizos and mulattoes. The capital, Santo Domingo, has a population of about 20,000. Spanish is the official language and the Roman Catholic the state religion. In 1900 there were some 300 primary schools with an attendance of about 10,000. There are also secondary, normal, and technical schools, and a professional school of collegiate grade.

Government.—The legislative power is vested in a national Congress of 24 deputies chosen by popular vote for a period of two years. The chief executive is a president, elected by an electoral college for a term of four years. The administration embraces the departments of interior and police; finance and commerce; justice and public instruction; war and navy; public works and foreign affairs. The country is divided into six provinces and six maritime districts, each under a governor appointed by the president. The communes enjoy a large measure of self-government. Justice is administered by a supreme court of justice and eleven territorial tribunals of first instance, besides local magistrates in every commune. The revenue is derived mainly from customs. In 1901-02 the public receipts and expenditures balanced at 1,238,440 dollars in gold, the United States dollar being the unit of value. The public debt in the middle of 1901 amounted to about $20,950,000 in foreign obligations, and $2,845,550 in gold and $10,226,629 in silver, within the country. The military strength of the republic comprises a small standing army, occupying the principal towns, and a national militia. The navy consists of two gunboats, one of 888 and one of 350 tons.

Production, Commerce, etc.—The principal products are sugar, tobacco, cacao, coffee, logwood, mahogany, and fruits. In 1900 the production of sugar amounted to 75,403,000 pounds. The principal articles of export are: sugar, cacao, coffee, mahogany, and logwood. Minor items are hides, wax, divi-divi, and rum. The imports consist of cotton goods, hardware, and provisions. In 1901-02 the imports were valued at $2,986,921 in gold, and the exports at $5,224,043. In 1899 the number of vessels entering the ports of the republic was 544; and the clearances were 380. The principal port is Puerto Plata. There are about 116 miles of railway and 430 miles of telegraph.

Early in 1902 signs of dissatisfaction were apparent with the president, Isidro Jiminez, who had assumed office in October, 1899, after the overthrow and assassination of President Heureaux. The opposition was led by the vice-president, Horacio Vasquez, and assumed the form of armed rebellion in April. The revolutionists gained possession of the town of Santo Domingo on May 2, 1902, and President Jiminez was compelled to seek refuge in the French consulate. He resigned the presidency and sailed for New York, where he declared his defeat a victory for despotism. The national Congress was dissolved and a provisional government was instituted with Horacio Vasquez as president.

SARAWAK, a British protectorate in Borneo (*q.v.*).

SAUNDERS, Frederick, a former librarian of the Astor Library, New York City, died December 12, 1902, in Brooklyn, N. Y. He was born August 14, 1807, in London, England, and came to the United States in 1837. Having established a branch of his father's London publishing house, he endeavored unsuccessfully to

secure the passage of an international copyright law in Congress. Afterwards he became city editor of the New York *Evening Post*. Appointed assistant-librarian of the Astor Library in 1859, he became librarian in 1876, and discharged the duties of that office for twenty years. He was the author of *Salad for the Solitary and the Social, Pastime Papers, Evenings with the Sacred Poets, New York in a Nut Shell, Story of Some Famous Books, Stray Leaves of Literature, Memoir of the Great Metropolis, Character Studies, Story of the Discovery of the New World by Columbus.*

SAVINGS BANKS. The following table, prepared by the comptroller of the currency, compares statistics for savings banks for the fiscal years 1901 and 1902:

States, etc.	1900-1901			1901-1902		
	Number of Depositors.	Amount of Deposits.	Average to Each Depositor.	Number of Depositors.	Amount of Deposits.	Average to Each Depositor.
Maine	196,583	$69,533,058	$353.71	193,005	$72,082,694	$373.47
New Hampshire	124,482	57,128,616	424.80	147,928	60,249,862	407.29
Vermont	123,151	40,209,059	326.50	128,529	41,967,497	326.68
Massachusetts	1,535,009	540,403,687	352.05	1,593,640	560,507,752	351.84
Rhode Island	138,884	72,330,141	520.80	138,366	71,900,541	519.64
Connecticut	410,342	163,781,942	447.88	425,588	193,248,909	454.07
Total New England States	2,538,451	$963,386,503	$379.52	2,627,056	$1,000,175,255	$380.72
New York	2,129,790	$987,621,809	$463.72	2,229,661	$1,051,689,186	$471.68
New Jersey	211,278	63,361,489	299.90	227,130	69,866,709	307.60
Pennsylvania	*356,418	113,748,461	319.14	396,877	120,441,275	303.47
Delaware	23,307	5,511,495	236.47	4,187	1,265,586	302.26
Maryland	175,740	61,250,694	348.53	186,293	64,367,767	345.52
District of Columbia	5,635	831,832	147.62	10,845	1,309,555	120.75
Total Eastern States	2,902,168	$1,232,325,780	$424.62	3,054,993	$1,308,940,078	$428.46
West Virginia	4,728	$563,264	$119.13	4,687	$680,372	$145.16
North Carolina	12,171	2,096,453	172.25	12,201	2,451,838	200.95
South Carolina	23,164	5,785,792	249.78	.....	.....	.....
Tennessee	19,823	3,519,333	177.54	.....	.....	.....
Total Southern States	59,886	$11,964,842	$199.79	16,888	$3,132,210	$185.47
Ohio	90,803	$43,672,493	$480.96	103,405	$48,180,436	$465.94
Indiana	22,354	6,561,464	293.53	24,362	7,288,506	299.17
Illinois	*258,916	‡80,251,287	309.95	†277,879	‡100,072,804	360.13
Wisconsin	3,385	634,236	187.37	3,908	719,009	183.98
Minnesota	56,179	13,961,616	248.52	63,293	15,526,701	245.31
Iowa	*203,227	73,578,268	362.05	*238,421	85,703,614	359.46
Total Middle States	634,864	$218,659,364	$344.42	711,268	$257,491,072	$362.02
California, and other Pacific States	*223,354	$170,758,091	$764.52	*256,467	$180,538,675	$703.55
Total United States	6,358,723	$2,597,094,580	$408.30	6,666,672	$2,750,177,290	$412.53

*Estimated.
†Partially estimated, 55 banks, with $96,890,262 savings deposits, report 269,038 depositors.
‡Savings deposits in State institutions having savings departments; abstract of reports included with State banks.

Savings Banks of the World.—The following table, compiled by the comptroller of the currency, gives the latest available statistics of the savings banks of the world. The number of depositors in foreign savings banks was 66,383,587, with deposits aggregating $6,661,067,000, while the United States banks, with 6,666,672 depositors, had $2,750,177,000 in deposits, or over 29 per cent. of the total deposits in savings banks in the world:

Countries.	Period.	Number of Depositors.	Total Deposits.	Average Deposit Account.	Average Deposit Per Inhabitant.	Rate of Interest.	Population.
						Per Cent.	
Russia (in Europe)	1901	3,935,773	$428,345,000	$108.83	.....	.....	.....
Finland	1900	181,269	15,700,000	86.61	95.87	.....	2,673,000
Germany	1898	13,854,927	1,929,332,000	139.25	35.46	3 to 4	54,406,000
Japan	1900	5,825,578	36,948,000	6.34	.83	.....	44,261,000
Austria	1900	4,792,611	833,210,000	173.85	32.14	.....	25,922,000
Hungary	1900	1,202,889	283,995,000	236.09	14.85	.....	19,122,000
United Kingdom	1901	10,434,877	936,117,000	89.71	22.53	2.5	41,546,000
France	1900	10,680,866	824,932,000	77.20	21.21	2.5 to 3	38,900,000
Italy	1899	5,669,590	448,700,000	79.14	14.08	.....	31,856,000

Countries.	Period.	Number of Depositors.	Total Deposits.	Average Deposit Account.	Average Deposit Per Inhabitant.	Rate of Interest.	Population.
						Per Cent.	
Belgium	1900	3,537,157	$231,684,000	$65.50	$34.61	.....	6,694,000
Canada*	1901	205,937	56,049,000	272.16	10.40	3	5,371,000
Holland	1899-1900	1,250,016	64,949,000	51.96	12.54	.....	5,179,000
Sweden	1900	1,828,362	135,444,000	74.07	26.36	4 to 5	5,136,000
Australasia, including New Zealand	1900	1,162,261	176,142,000	151.55	38.82	2.5 to 3	4,537,000
Denmark	1900	1,150,233	177,433,000	154.25	72.45	.....	2,449,000
Norway	1900	671,241	82,087,000	122.29	36.95	.....	2,221,000
Total	.....	66,383,587	$6,661,067,000	.....	.....	.....	.....
United States	1902	6,666,672	2,750,177,000	$412.53	$34.89	2.2 to 4.5	78,833,000
Grand total	.....	73,050,259	$9,411,244,000	.....	.....	.....	.....

* Post-office and Government savings banks only; $19,125,097 additional deposited with special savings banks, exclusive of amounts deposited with the savings branches of the chartered banks.

Statistics of foreign postal savings banks, which are incorporated in the above table, were received from fourteen countries. The number of depositors at the date of returns (1899 to 1901) was 23,436,711, and the deposits $1,466,601,083—an average of $62.57.

See Banks—Banking; Trust and Loan Companies; National Banks; State Banks; Private Banks.

SAXE-WEIMAR, Prince of, William Augustus Edward. See Edward, William Augustus, Prince of Saxe-Weimar.

SCENIC AND HISTORIC PRESERVATION SOCIETY, AMERICAN, incorporated by the New York State legislature in 1895, has for its objects the protection of the beauties of natural landscape from disfigurement, the preservation of geological formations, the saving from obliteration of names, places and objects identified with local, State and national history, the erection of historical memorials, etc. The society is empowered to receive by purchase, gift, or otherwise, real or personal property necessary for its purposes, and is required to make an annual report to the State legislature. It has three classes of members, annual, life, and a class designated as patrons. At the instance of the society the State of New York purchased in 1897 a tract of thirty-three acres, which included the historic battlefield of Stony Point, the scene of "Mad Anthony" Wayne's celebrated Revolutionary victory. It was placed in charge of the society and was publicly dedicated as a State reservation on July 16, 1902, the 123d anniversary of the battle. The society has also influenced the creation of another State reservation by the purchase of about thirty-five acres at the head of Lake George, made famous by events during the French-Indian and Revolutionary wars. The society was represented on the Interstate Palisades Commission, now engaged in the prevention of further disfigurement of scenery along the Hudson River and is credited with having influenced the donation of the Fort Washington monument to the public by Mr. James Gordon Bennett, November, 1901. Recently the society has turned its attention to the preservation of Fraunce's Tavern (the scene of Washington's farewell to his army), the Alexander Hamilton Grange, and Poe's cottage, in New York City, and the Philipse Manor Hall, in Yonkers. President, Hon. Andrew H. Green; secretary, Edward Hagaman Hall, Tribune Building, New York City.

SCHENCK, Leopold, a German physician, for many years director of the Embryological Institute in Vienna, died in Schwanberg, Styria, August 18, 1902. His theories for predetermining sex brought him into great prominence in 1898 upon the publication of his book, *Einfluss auf das Geschlechts verhältnis,* translated as *The Determination of Sex.* The theory was made the subject of considerable professional controversy in medical periodicals. Starting with the premise that ordinarily the blood of the female has fewer red corpuscles than the blood of the male, Dr. Schenck argued that as nutrition determines the condition of the blood, a prescribed diet affecting the mother's blood would determine the sex of the offspring. Many royal personages were placed under his care and his treatment was sometimes successful; but scientific interest in the discovery gradually subsided.

SCHOOLS. Statistics of the State school systems for the year 1900-01 are given on the following page. These figures include the number of secondary schools and enrolment therein and the total expenditure for schools. For other information concerning common schools, see Education in the United States; see, also, Normal Schools, Professional Schools, and Universities and Colleges.

States and Territories.	Secondary Schools.						All Schools.		
	Number of Schools.		Total Number of Students.		Colored Students.		Total Expenditure for All Schools.	Expenditure Per Capita of Total Population.	Average Expenditure Per Pupil.
	Public.	Private.	Public.	Private.	Public.	Private.			
NORTH ATLANTIC DIVISION.									
Maine	151	33	8,519	7	2,460	3	$1,727,175	$2.48	$17.80
New Hampshire	60	30	3,813	1	1,939	6	1,052,202	2.56	22.26
Vermont	61	17	3,647	9	1,186	.....	1,106,099	3.28	23.06
Massachusetts	241	96	38,314	147	5,935	9	14,179,947	4.96	38.21
Rhode Island	21	13	3,551	37	670	1	1,629,959	3.69	33.24
Connecticut	74	62	8,397	48	2,935	1	3,391,886	3.64	29.42
New York	383	199	63,549	227	10,911	2	36,395,270	4.91	41.68
New Jersey	95	67	11,906	136	3,461	3	7,189,712	3.72	32.49
Pennsylvania	391	137	32,438	237	11,236	122	22,813,395	3.55	29.62
SOUTH ATLANTIC DIVISION.									
Delaware	14	3	1,151	.....	137	.....	453,670	2.46	17.93
Maryland	52	45	3,960	268	2,440	2	2,549,497	2.12	18.81
District of Columbia	5	23	3,551	740	893	.....	1,485,671	5.23	40.50
Virginia	73	78	4,446	556	3,526	262	1,971,264	1.08	9.70
West Virginia	32	15	1,871	60	1,219	.....	2,009,123	2.10	13.28
North Carolina	28	103	1,296	68	5,832	260	1,152,920	60	4.56
South Carolina	99	28	4,313	162	1,467	152	961,897	71	4.62
Georgia	124	70	6,264	110	3,529	606	2,083,366	92	6.68
Florida	39	12	1,670	31	352	113	771,936	1.41	10.25
SOUTH CENTRAL DIVISION.									
Kentucky	86	94	5,541	495	4,342	.....	2,851,651	1.30	9.13
Tennessee	109	82	5,449	495	4,387	3	1,751,047	87	5.17
Alabama	74	37	4,239	109	1,856	114	923,464	50	3.10
Mississippi	102	43	4,441	503	2,122	162	1,306,186	86	6.48
Louisiana	34	28	2,294	73	1,187	19	1,236,647	88	8.82
Texas	261	62	16,101	807	3,968	179	4,640,470	1.47	10.18
Arkansas	62	22	3,136	301	1,373	17	1,396,594	1.05	6.88
Oklahoma	13	2	905	91	106	1	686,096	1.72	7.01
Indian Territory	5	7	205	.....	386	.....	357,217	84	29.37
NORTH CENTRAL DIVISION.									
Ohio	709	48	47,743	642	2,369	.....	14,245,886	3.39	23.33
Indiana	390	29	26,755	419	2,446	2	8,032,534	3.15	19.12
Illinois	369	61	41,176	435	3,161	2	19,031,463	3.82	25.16
Michigan	299	21	29,522	104	1,278	.....	7,965,700	3.26	22.21
Wisconsin	228	21	20,216	24	1,492	1	5,881,473	2.80	21.10
Minnesota	127	26	13,889	44	1,709	.....	6,247,273	3.46	26.09
Iowa	346	39	29,637	90	2,312	.....	8,835,048	3.90	23.65
Missouri	237	72	20,261	898	4,584	95	7,860,158	2.49	17.12
North Dakota	32	2	1,349	3	112	.....	1,526,090	4.78	35.03
South Dakota	73	7	3,128	7	381	.....	1,611,338	3.83	24.88
Nebraska	257	17	15,323	44	679	3	4,170,050	3.85	22.87
Kansas	223	12	15,638	441	841	1	4,666,210	3.15	18.01
WESTERN DIVISION.									
Montana	21	4	1,827	4	207	.....	879,882	3.36	33.97
Wyoming	10	1	393	1	40	.....	253,551	2.74	24.85
Colorado	49	6	6,499	64	242	.....	2,861,358	5.02	38.29
New Mexico	7	5	282	3	133	.....	723,048	3.61	30.88
Arizona	2	2	172	1	21	.....	299,730	2.44	29.45
Utah	6	12	1,254	2	2,115	.....	1,342,858	4.72	25.07
Nevada	12	.....	515	2	.....	.....	195,802	4.62	39.70
Idaho	7	4	421	.....	150	.....	400,043	2.47	18.22
Washington	74	15	3,692	16	643	1	2,299,313	4.23	28.25
Oregon	34	16	2,639	7	832	.....	1,350,820	3.18	24.75
California	117	64	14,632	59	2,618	5	7,289,243	4.80	36.67
RECAPITULATION.									
North Atlantic Division	1,477	654	174,134	849	40,733	147	89,485,645	4.17	33.52
South Atlantic Division	466	377	28,322	1,995	19,396	1,405	13,439,344	1.28	9.61
South Central Division	746	377	42,311	2,874	19,727	495	15,149,371	1.06	7.54
North Central Division	3,290	355	264,637	3,151	21,364	104	90,073,228	3.36	22.26
Western Division	339	129	32,326	159	7,001	6	17,895,648	4.25	31.46
United States	6,318	1,892	541,730	9,028	108,221	2,157	$226,043,236	$2.93	$21.14

SCIENCES, NATIONAL ACADEMY OF, incorporated by act of Congress, May 3, 1863, has for its object the examination and investigation of any subject of science or art and reporting on the same at the call of the United States government, the actual expense of such examination and report to be paid out of appropriation made for that purpose. The Academy cannot receive compensation under any circumstances from the government for its services. Meetings are held at such places in the United States as may be specially designated when reports of the work of the year are made, the annual meeting being held in Washington, on the third Tuesday in April. The Academy is composed of members, honorary members, and foreign associates. Citizenship is a prerequisite of membership, while the foreign

associates are limited to fifty. The Academy has a membership of ninety at the present time, and there are twenty-six foreign associates. The officers are elected for six years. Those now in office and the dates of their expiration are as follows: President, Prof. Alexander Agassiz, Cambridge, Mass. (1907); vice-president, Asaph Hall, Norfolk, Conn. (1903); foreign secretary, Ira Remsen, Baltimore, Md. (1907); home secretary, Arnold Hague, Washington, D. C. (1907); treasurer, Charles D. Walcot, Washington, D. C. (1904).

SCOTLAND. See GREAT BRITAIN.

SCOTLAND, CHURCH OF. The Established Church of Scotland is the State church, the crown being represented by a lord high commissioner, who is annually appointed, but maintains a Presbyterian polity. It is governed by a general assembly, which meets every year in Edinburgh. There are 16 synods and 84 presbyteries, having 1809 churches, 1674 ministers, and 668,335 communicants. The Church of Scotland supports active missionary work in India and Africa, and maintains in the foreign field 130 missionaries. Its income aggregates considerably more than $2,300,000.

SCOTLAND, UNITED FREE CHURCH OF, organized in 1900 by the union of the Free Church of Scotland and the United Presbyterian Church, is similar in doctrine and government to the Established Church, but is entirely separate from the State. It has 11 synods and 64 presbyteries, 1702 churches, 1934 ministers, and 534,831 members. The total income exceeds $5,000,000. A significant action of the general assembly in 1902 was its refusal to condemn a work of higher criticism, thus indicating the liberal attitude of the church, which has been ever noted for its conservatism. When the union of the two churches was consummated in 1900, there was a dissentient minority in the *Free Church of Scotland,* which brought action against the United Church to recover the property and funds of the Free Church. Having lost the original suit, they appealed to a higher court which confirmed the first decision; an appeal from this latter judgment has been carried to the House of Lords. The number of anti-unionists, who claim 26 ministers and 93 congregations, is said to be between 50,000 and 80,000.

SCOTT, Sir FRANCIS CUNNINGHAM, commander of the British Ashanti expedition of 1895-96, died June 26, 1902, in London. He was born in India in 1834, and obtained a commission in the Forty-second Highlanders in 1852. He saw service in the Crimean War and the Indian Mutiny, being present at Alma, Balaclava, and Sebastopol, and in the relief of Lucknow. In the Ashanti war of 1874 he was brevetted lieutenant-colonel and created C.B. Subsequently he served in the Body Guard, in which he commanded a battalion of the Middlesex regiment from 1885 to 1888. Appointed inspector-general of the Gold Coast Constabulary in 1891, he led an expedition against the Jebus the following year, and took their capital after three days' consecutive fighting. He commanded a similar expedition against the Attabubus, and the important Ashanti expedition in which he captured the court at Kumassi. He was appointed commander of the local forces in Trinidad in 1898. The decorations of K.C.M.G. and K.C.B. were conferred upon him, respectively, in 1892 and in 1896.

SCUDDER, HORACE ELISHA, an American editor and author, died January 11, 1902. He was born at Boston, Mass., October 16, 1838; graduated at Williams College in 1858, and, having taught for three years in New York, became a reader for Hurd and Houghton (later Houghton, Mifflin and Company), and from 1867 to 1870 was editor of their *Riverside Magazine for Young People.* In 1890-98 he was editor of the *Atlantic Monthly,* and subsequently literary adviser to Houghton, Mifflin and Company. He was known as a scrupulous editor—as, for example, in the *American Commonwealths* series—and a thoughtful biographer and essayist. Among his publications are: *Stories from My Attic* (1869), a *Life of Noah Webster* (1882), a *History of the United States* (1884), *Men and Letters* (1888), and the authoritative biography of *James Russell Lowell* (1901).

SCULPTURE. The most important undertaking before American sculptors during the year 1902 was the preparation for the decoration of the buildings and grounds of the Louisiana Purchase Exposition at St. Louis. In July, 1901, the direction of this work was placed in the hands of Mr. F. Wellington Ruckstuhl, the sculptor, who formed an interesting scheme according to which work proceeded until December 31, 1902, when, largely for personal reasons, Mr. Ruckstuhl resigned his position and was succeeded by Mr. Karl Bitter.

There have been appropriated $400,000 for carrying out an elaborate plan of sculptural adornments, in which the chief interest centres in the cascades on the hill leading up to the Art Building. In the competition for the monument to General Grant in Washington, the award of the jury was to Mr. Shrady, a comparatively unknown sculptor; the second place being given to Mr. Niehaus. Several matters

relating to the location of sculpture came before the Art Commission of the City of New York, the most important being the equestrian statue of General Sherman by Mr. St. Gaudens, which was assigned to the Circle at Fifty-ninth Street and Fifth Avenue, and the Maine Monument, which was assigned to Longacre Square. In December, 1902, an interesting exhibition of the National Sculpture Society, in conjunction with the Florists' Club, was held in Madison Square Garden, New York City. The large contract for the sculptural decoration of the State House, at Harrisburg, Pa., was awarded to Mr. Barnard. Work on the pediment sculptures of the New York Stock Exchange by Mr. Ward and Mr. Bartlett is far advanced. Mr. Rupert Schmid, of San Francisco, has completed a frieze of great size and some importance for the Memorial Arch of Leland Stanford, Jr., University.

English sculptors are busy with numerous monuments to Queen Victoria, which are to be erected in various parts of the empire. The exhibition of sculpture at the Royal Academy was small but interesting, the most important work being a colossal equestrian statue of the Black Prince by Mr. Brock. Mr. Brock also exhibited a bronze statue of a Royal Scots fusilier, a memorial of the African war, and a marble statue of Gladstone for Westminster Abbey. Other works were "The Crown of Love" and "The Springtime of Life," by Mr. Colton, and several busts by the late Mr. Onslow Ford.

In France the immense exhibition of sculpture at the Salon was more dignified and less sensational than usual. Notable works were the polychromatic statue of "La Pensée," by M. Puech; a statue of a dancer by Gérôme, also slightly colored; the monument to the painter Louis François, by Peynot (sculptor) and Godefroy (architect), and portions of the monument to Gounod by Mercié. The monument to Victor Hugo by Barrias has been located near the house which the poet formerly occupied in Paris. There was an exhibition of works of the late M. Falguière at the Ecole des Beaux Arts in February, 1902. His atelier, with its contents, has been left to the public as the Musée Falguière. The widow of the great sculptor Carpeaux has presented to the city of Paris a series of important studies left in his atelier. The sculptor Jules Dalou (*q.v.*) died in April, 1902. M. Guillaume, the sculptor, has been a third time elected director of the French Academy in Rome. He has held that office eighteen years. The Musée des Arts Décoratifs of the Union Centrale des Beaux Arts was installed in the Pavillon de Marsan of the Tuileries, June 4, 1902. The first grand prix de Rome in sculpture was awarded to M. Terroir, a pupil of Cavelier and Barrias; the first-second to M. Brasseur, a pupil of Barrias; the second grand prix to M. Descatoire, a pupil of Labrouste and Thomas.

In Germany an important occurrence is the completion of the Pergamon room in the Berlin Museum, in which the splendid fragments discovered by the Germans on that site since 1886 have been placed as nearly as possible in their original position. Max Klinger, one of the most powerful and imaginative of the school of German painters who follow Boecklin, has produced lately many interesting works in sculpture, the most extraordinary being a partially nude statue of Beethoven, which was finished in March and afterwards sent to the exhibition of the Secession in Vienna. A monument to Von Moltke is in preparation, to be placed opposite the Bismarck monument in the Königsplatz in Berlin. "L'art nouveau" is making great strides in Germany and Austria. All the exhibitions show interesting small bronzes in the unconventional manner that goes by that name.

"L'art nouveau" reached its climax in the exposition inaugurated at Turin on May 10, 1902. The jury accepted nothing which showed any definite affiliation with the conventional styles. The most important work of sculpture at this exhibition was the equestrian statue of Amadeo of Savoy, the main interest of which rests in the splendid groups of cavalry about its base. There were many interesting statues on the central building. The vast monument to Victor Emmanuel in Rome, which was begun over twenty years ago, is making great progress and will be finished in seven years.

SEDDON, Richard John, premier of the British colony of New Zealand since 1893, took part in the conference of colonial premiers at London in the summer of 1902. He was born at Eccleston, Lancashire, England, in 1845; was educated at Eccleston Hill School, and in 1863 went to Australia, settling at first in Melbourne, where he obtained employment in the profession for which he had been trained—that of a mechanical engineer. After a short time he removed to New Zealand, with the history and development of which colony he has since been prominently connected. His political career in New Zealand began in 1879 with his election to the colonial house of representatives, of which body he has remained a member. He was one of the earliest and strongest advocates of the extension of the scope of the state's activities, and the ownership of public utilities. From 1891 to 1893 he held the portfolios of minister of mines, minister of public works, and minister of defense. In 1893 he became premier, and while still retaining for three years longer the portfolios of public works and defense, he undertook also the offices of colonial

treasurer, postmaster-general, minister of labor and minister of native affairs. After 1896 he continued to hold the premiership and the four latter offices. He has thus familiarized himself with almost all departments of the colonial government, and it is probably due to this accurate knowledge of their relation to the economic and industrial life of the islands that he was able to undertake the reformation and extension of the colony's governmental activities which have made New Zealand more advanced in its adoption of the principles of state socialism than any other community in the world.

SELENKA, Emil, a German zoologist, died in January, 1902. He was born February 27, 1842, in Brunswick, Germany, and after study at Göttingen was, in 1868, made professor of zoology and comparative anatomy in Leyden. In 1874 he was called to the same post at Erlangen, and in 1896 he became an honorary professor at Munich. His chief interest and scientific accomplishment was in the study of echinodermata and vertebrate animals. His various writings include: *Zoologische Studien* (1878-81), *Studien über Entwicklungsgeschichte der Tiere* (1883-92), *Ein Streifzug durch Indien* (1890), *Sonnige Welten* (with his wife, 1896).

SELFRIDGE, Thomas Oliver, rear-admiral U. S. N., who was the senior officer on the retired list, died October 15, 1902, at Waverly, Mass. He was born April 24, 1804, in Boston; entered the navy in 1818, was a midshipman on the old *Constitution,* and became lieutenant in 1827. In 1844 he was commissioned commander and was soon afterwards assigned to the flagship of the East Indian squadron. In the Mexican War he took part in the capture of Matanzas and Guaymas, and received a wound in the latter engagement which incapacitated him for sea duty during the Civil War. In 1855 he was commissioned captain, and later took command of the navy yard at Boston. In 1861 he joined the Gulf squadron, but was soon obliged to give up sea duty again on account of his wound, and was put in command of the navy yard at Mare Island, Cal. In 1862 he was commissioned commodore and in 1866, after forty-eight years of service, was retired. He served later as commandant of the Philadelphia navy yard and as president of the examining board. He was probably the oldest rear-admiral in any navy of the world. His son, T. O. Selfridge, who survives him, was retired with the rank of rear-admiral in 1898.

SELWIN-IBBETSON, Sir Henry John, first Baron Rookwood, died in London, January 16, 1902. He was born in London, September 26, 1826, and graduated at St. Johns College, Cambridge, in 1849. He unsuccessfully contested Ipswich in 1851 and 1859, entered Parliament for South Essex in 1865 as a Conservative, and represented West Essex from 1868 to 1892. He was under secretary of state for the home department from 1874 to 1878, financial secretary to the treasury from 1878 to 1880, and from 1885 to 1892 was second church estate commissioner. While in Parliament he was instrumental in securing the opening of Epping Forest, and in introducing the block system on English railroads. He was raised to the peerage in 1892 and took the title of Baron Rookwood.

SENEGAL, a French colony of West Africa, occupying the coast region between the Sahara and the River Gambia. Including the Senegambian hinterland, which extends inland for about 900 miles, it has an area of about 200,000 square miles, and a population of over 3,200,000. Senegal proper has an area of 80,000 square miles and a population of 1,180,000. By the reorganization of French West Africa (*q.v.*) Senegal itself is a part of that colony, under the supreme administrative control of its governor-general, who is represented by a lieutenant-governor for Senegal, residing at St. Louis, which has 22,000 inhabitants. The colony is represented in the French parliament by one deputy. There is an independent budget for Senegal proper, but the hinterland, under the new arrangement, is administered jointly with the other West African colonies, which contribute to its budget. A military force of 2600, of whom 1180 are native troops, is maintained. The local budget for 1901 balanced at 4,644,730 francs. The imports in 1901 were valued at 64,074,000 francs, and the exports at 38,205 francs. Maize, millet, and rice are cultivated; other products include earth nuts (140,000 tons in 1900), gums, castor-beans, cocoanuts, rubber, and kola. Gold, silver, and copper are mined. Native industries comprise weaving, pottery, and brick-making. There were 520 miles of railway open in 1900 and the line is being rapidly built into the interior.

SERUM THERAPY. Activity in this branch of therapeutics was notable during 1902, and the amount of investigation was enormous. Many new serums have been prepared, but thus far none has duplicated the success of diphtheria antitoxin. Failures have been numerous and successes few and unsatisfactory, but enough has been learned to promote a revolution in the methods of treating diseases in the future. The best results have been obtained in prophylactic vaccination with anti-plague serum. Dr. Pinto, of Rio de Janeiro, states that during the recent widespread epidemic of plague at Campos, 1803, exposed persons were inoculated; out of these only one contracted the disease. In another district one individual who refused to be inocu-

lated was the only person to acquire plague. However, it is possible that better results were obtained because the disease is of a mild character in Brazil. In India, Haffkine's prophylactic serum has again been found of service in preventing outbreaks of plague. In persons who have acquired the disease the serum treatment has not been so brilliant. In Bombay, of cases treated with Lustig's serum, from 67 per cent. to 77 per cent. died. Of cases not treated with serum, from 61 per cent. to 98 per cent. died. The lower averages are for non-septicæmic cases, and the higher for those received at hospitals in a state of septicæmia.

SERVIA, formerly an autonomous Turkish dependency, but since the Treaty of Berlin (1878) an independent constitutional monarchy, lies in the Balkan peninsula, south of Hungary, between Bosnia and Bulgaria. The capital is Belgrade, with 69,990 inhabitants. The area of the country is 19,050 square miles and the population in 1901 was 2,535,915. Four-fifths of the inhabitants are Servians, and most of the remainder Roumanians or Gypsies. The state church is the Orthodox Greek, of which most of the inhabitants are adherents. Primary education is nominally compulsory and partly free, but 80 per cent. of the people are illiterate.

Government and Finance.—A new constitution was granted by King Alexander in 1901, entailing the succession upon his direct descendants of either sex. The executive power is vested in a king assisted by a cabinet of eight responsible heads of departments. The legislative authority is vested jointly in the king, a senate, and the national assembly (Skupshtina). The senate is partly appointed by the king and partly elected. The Skupshtina is composed of 130 delegates elected by the people on a limited suffrage. The ruling sovereign, Alexander I., became king in 1893. Military service is compulsory for all males over twenty-one years of age. Service comprises two years in the active army, eight years in the reserve, and thereafter enrollment in the militia for twenty years. The active army numbered in 1902 22,448 officers and men, the mobilized regulars and reserves numbered 160,751, and the war effective 353,122 men. There is no navy. The standard of value is the dinar, worth one franc, or 19.3 cents. Revenue is derived from customs, excise, direct taxes, and monopolies. The budget for 1902 showed receipts of 70,565,981 dinars and expenditures of 72,983,135 dinars. The public debt on January 1, 1902, was 418,685,093 dinars. The National Bank of Servia, with a nominal capital of 20,000,000 dinars, has a monopoly of the note issue, which, in 1901, was 35,900,000 dinars, secured by a gold and silver reserve of 44 per cent. of that amount.

Industries, Commerce, etc.—Servia is an agricultural country, the cultivation being largely in the hands of peasant proprietors with small holdings. Maize, wheat, oats, and barley are the principal cereal crops. Plums are one of the chief products, the yield in 1897 being 14,046,497 quintals, and amounting annually to more than 10 per cent. of the total value of exports. The drying and canning of fruits is one of the most important industries, while flour-milling, carpet and rug-weaving, and tanning, are important. The imports in 1901 were valued at 43,835,000 dinars, and the exports at 65,685,000 dinars. Sixty per cent. of the trade is with Austria-Hungary and Germany. There were 354 miles of railway in operation in 1902 and several extensions under construction.

HISTORY.

Ministerial Troubles.—On March 20, 1902, as a result of an adverse vote in the Skupshtina, Premier Vuitch, the head of the Radical cabinet that came into power in 1901, handed in his resignation. The assembly had no intention, however, of causing a change in ministry, and the next morning reconsidered its action and passed a vote of confidence, upon which Premier Vuitch withdrew his resignation. But the situation was unsatisfactory until May 18, when M. Vuitch again resigned, and the king gave the task of reconstituting the ministry to M. Pasitch, also a Radical. M. Pasitch failed, and the king, loath to turn to the Liberals, recalled M. Vuitch, who reconstructed his cabinet, by introducing four new ministers. The cabinet as then constituted comprised 4 Radicals, 3 Progressists, and 1 independent. This cabinet remained in power until October, when an affair interesting from an international point of view led to M. Vuitch's resignation for a third time. Since Alexander and his government have broken with the Austro-German alliance of the late king Milan and have sought a *rapprochement* with Russia, they have considered as a necessary consummation of that policy a meeting between the king and czar. M. Vuitch, as premier, had made this a prominent point in his programme. In October, 1902, after several postponements, the meeting seemed likely to take place, when it was announced that a new obstacle had arisen in the illness of the czarina, which would make it impossible for her to receive the royal Servian visitors. At least, "illness" was the official explanation given at St. Petersburg. In Servia, however, it was believed that the real truth of the matter was that Austro-German influences had apprised the czarina of the scandalous stories connected with Queen Draga before and after her marriage, and that therein lay the

real reason. In order therefore to give the king a free hand, M. Vuitch resigned. For some days it seemed possible that there would be a complete revolution in Servian policy, both foreign and domestic, and that the king, piqued by Russia's snub, would adopt the Austrophil policy of his father, with a probable reactionary policy in domestic affairs. This belief proved without foundation, however, for the king intrusted the formation of a new cabinet to M. Velimirovitch, who chose its members from the Radicals and Progressists, like the Vuitch cabinet, with no anti-Russian representative. Nevertheless the pride of both king and nation had been wounded, and when, after a short and uneventful existence, the Velimirovitch cabinet gave place on November 18 to a ministry chosen by General Markovitch, and containing, besides himself, two military men, it was said that the king had come to a realization that his pro-Russian policy was a mistake, and that he intended to establish a strong military régime. At the end of the year the journey to St. Petersburg seemed just as far off as ever, but cordial relations between Russia and Servia had been, in a manner, restored by a visit of Count Lamsdorff to Belgrade late in December.

SEWAGE PURIFICATION. No leading American city completed sewage purification works during 1902, but a number of works were constructed by small cities and towns, and perhaps even more by public institutions. The installation of chemical precipitation works for the treatment of sewage has practically stopped in both America and Great Britain, and instead septic tanks are being built. Likewise sewage irrigation abroad and intermittent filtration of sewage in the United States and Canada are being superseded by the use of bacterial filters, although in America the old filter beds are rarely being abandoned or altered for the new and more rapid bacterial filters. At Manchester, England, after a careful investigation by expert engineers, chemists and bacteriologists, work has been started on changing old chemical precipitation tanks to septic tanks, and on the construction of bacterial contact beds. From a paper by Mr. J. P. Wilkinson, read before the Sanitary Institute of Great Britain, in 1902, it appears that the new Manchester works are designed to treat a maximum daily flow of house sewage and storm water amounting to about 150,000,000 U. S. gallons a day, of which half will pass from the tanks through the double contact beds, and the excess will be sent to storm water filter beds. In addition to the contact beds, land for irrigation has been acquired or arranged for, to meet the requirements of the British local government board. With this area in use the sewage will be subjected to septic or anaerobic bacterial action in the tanks, aerobic bacterial action in first and second contact beds, and then have a final treatment on a sewage farm. The total cost of the new works, and accessories, is estimated at about $2,500,000.

The sewage of western London is gathered in intercepting sewers and carried down on either side of the River Thames to two large chemical precipitation plants, at Barking and Crossness, respectively. The effluent from these works is discharged into the Thames without further treatment, but it has been recognized for some years that the practice would not much longer be permissible. Accordingly, the London county council has, for several years past, been experimenting with bacterial purification. The magnitude of the London problem may be partly appreciated from the fact that for the year 1901-02 the sewage and main drainage from an area of 141 square miles, with a total population of 5,137,000, was treated at the precipitation works; and that the average daily quantity so treated was about 282,000,000 U. S. gallons, or over 100,000,000,000 gallons for the whole year. The sludge from the precipitation tanks was sent out to sea in barges, and dumped, amounting to 2,479,000 gross tons for the year. The net expenditure for the year's maintenance was over $1,000,000. In April, 1902, Prof. Frank Clowes, chemist to the London county council, presented the fourth (and for the present the final) report on the "Bacterial Treatment of Crude Sewage," in experimental settling tanks and coke bacterial filter beds at Barking and Crossness. The conclusions reached after several years of analytic and other studies of the crude and the treated sewage were that by combining settling, or septic, tanks with coke bacteria beds the use of chemicals could be stopped and an effluent could be produced that would not give rise to offensive putrefaction, even at summer heats, if discharged into the Thames. On the strength of these conclusions the report states that "it would appear desirable, therefore, without delay, to commence the treatment of the London sewage by the above bacterial method." The necessary changes and additions would be made by degrees. Up to the close of the year no definite measures toward carrying out these recommendations appear to have been adopted.

In Massachusetts, the State board of health is continuing its experimental studies of sewage purification, begun at Lawrence in 1887, and is publishing its results from year to year in its annual reports. Detailed studies of the septic tank are being made at Worcester, Mass., by Prof. Leonard Kennicutt and Mr. Harrison P. Eddy. Some of the earlier results, combined with a review of other investigations of the septic

tank, were given in the third report of the Connecticut sewerage commission, published in 1902 (R. A. Cairns, secretary, Waterbury, Conn.).

The number of sewage purification works in the United States, as reported for places of 3000 population and upwards early in 1902, was 95. Of these plants, 24 employed intermittent filtration alone, and three others combined that process with broad irrigation or sedimentation, making 27 in all; 21 employed broad irrigation, alone, or some modification of it; there were seven independent septic-tank works, and 15 others combined with some form of filtration, making a total of 22; chemical precipitation, by itself, claimed seven, and in various combinations, three plants, making 10 in all. The remaining 15 of the 95 plants were of a miscellaneous or indeterminate character. For a descriptive list of these works, see *The Municipal Year Book* (New York, 1902).

SEWERAGE. The introduction of sewers for the removal of household wastes lags far behind the provision of public water supplies. As a partial illustration of this may be cited the fact that in places of 3000 population and upwards by the national census of 1900, 1475 had public water supplies in 1902, and only 1096 had sanitary sewerage systems. Among the larger places without sanitary sewers were the following, in order of their population: Baltimore, Md., 508,957; New Orleans, La., 287,104; Allentown, Pa., 35,416; Gloucester, Mass., 26,121; Warwick, R. I. (a "town" of more or less scattered population), 21,316; Columbia, S. C., 21,108; Shenandoah, Pa., 20,321. Bids for a sewerage system at Baltimore were invited in 1902, and the construction of a system at Columbia was also started during the year. Baltimore has some large sewers for removing surface water, and has had sanitary sewers under active consideration for several years past. A new commission was created in 1902 to devise a plan for stopping the pollution of that portion of the Passaic River beginning at Paterson and extending to Newark Bay. A great nuisance has existed there for a number of years past, and several commissions have reported on its abatement. The new commission was to report to the State legislature of 1903, and there was reason to suppose that its report, like those resulting from the last investigation, would favor an immense trunk sewer down the lower Passaic Valley, across Newark Bay, and out into deep water near Robin's Reef, New York harbor. Such a plan involves a low-lift pumping station on the Newark Meadows.

SEYCHELLES, a group of islands in the Indian Ocean, 1000 miles north of Mauritius, of which they were formerly an administrative division, constitute a British crown colony. The 74 named islands in the group have a total area of 148 square miles and a population (1900) of 20,275. The seat of government is at Victoria, on the island of Mahé. The executive authority is vested in an administrator, or governor, assisted by executive and legislative councils. The revenue in 1901 was Rs. 486,323 and the expenditure Rs. 401,821. (The rupee is worth 32.4 cents.) The imports in 1901 were valued at Rs. 1,149,646 and the exports at Rs. 1,417,515, of which amount the value of vanilla constituted Rs. 1,108,792. In addition to vanilla the exports included cocoanuts, cocoanut oil, tortoise shell, and guano.

SHAKERS, the Millennial Church, or United Society of Believers, constitute the oldest existing communistic society in the United States, their first community in this country, having been organized in 1787 at New Lebanon, N. Y. There are 15 settlements—2 each in Maine, New Hampshire, New York, Ohio and Kentucky, 3 in Massachusetts, and in Connecticut and Florida 1 each—comprising some 30 families with about 1200-1300 members. The settlements are termed societies, whether composed of one family or of a group, most of the societies having two families, some as many as four, and others, but a single family. Church edifices are owned by 13 societies, and there are ten or eleven common schools. The property in possession of the Shaker communities is valued at more than one million dollars. In each family there is a "lot" of elders, when full, comprising two persons of each sex, and in addition to the elders, there are five sets of ministry, of similar composition, only two ministerial orders, however, being full. The office of the ministry corresponds to that of bishops in other churches, they having charge over the elders, the heads of families. The number of ministers among the Shakers is between 50 and 60. The greatest strength of the society is in the State of New York, where 8 families exist under the control of the central ministry.

SHEPHERD, Alexander R., second territorial governor of the District of Columbia, died September 12, 1902, at Batopilas, Mexico. He was born January 31, 1835, in Washington, D. C. At the opening of the Civil War he served in the national guard, and in 1861 became active as an organizer of the "unconditional party," which carried Washington, and he was elected president of the council. Being overwhelmingly defeated for alderman in 1863, he abandoned politics for the time, but in 1870 he was one of the leaders of the successful reform movement, which won at the polls. He advocated the creation of the territorial government

which went into effect in 1871, was appointed by President Grant chairman of the board of public works, and planned for Washington a vast scheme of improvements that he attempted to carry out when appointed governor in 1873. Before the year was out and the form of government changed, he had spent $40,000,000 of the public funds and left as a legacy a debt of $27,000,000 more. The execration heaped upon him at the time subsequently transformed itself to praise for his having made Washington a beautiful city. He returned to business, failed for over a million dollars, and then took up silver mining in Mexico, where he gained and lavished money on a princely scale.

SHIPBUILDING. The year 1902 was in the main one of great activity for shipbuilders, and most of the great plants were busily engaged. The tonnage constructed, as will be seen from the accompanying tables, though not equaling that of 1901, was unusually large, and extremely favorable conditions were reported in American yards, where the shipbuilding industry is slowly but steadily developing:

WORLD'S SHIPBUILDING FOR 1902 AND 1901.

Nation.	1902			1901		
	Vessels.	Tons.	I. H. P.	Vessels.	Tons.	I. H. P.
Scotland	404	567,886	533,128	376	554,406	472,190
England	937	891,521	669,373	876	1,092,760	890,298
Ireland	27	159,633	.....	23	151,922	109,300
Colonial	86	24,700	.....	62	9,394	.....
Total Great Britain	1,454	1,643,740	.....	1,377	1,808,482	.....
United States	162	314,894	174,024	141	324,791	308,612
Germany	259	272,350	234,096	241	265,860	186,935
France	102	189,931	80,590	32	85,971	42,635
Holland	176	91,117	35,600	132	53,789	12,725
Italy	26	49,995	35,023	35	38,507	54,246
Japan	48	35,572	64,120	49	20,763	25,967
Norway and Sweden	67	34,330	23,684	80	52,143	45,316
Denmark	20	22,439	14,020	20	20,935	21,815
Austria-Hungary	26	20,911	22,455	24	30,162	30,280
Belgium	14	14,561	7,195	23	20,886	3,050
China	22	3,824	5,875	36	8,918	6,625
Russia	15	2,743	19,785	28	31,551	52,030
Spain	1	2,040	1,100	2	327	.....
Greece	1	200	150	2	200	240
Grand totals	939	1,054,907	717,717	845	954,803	790,476
Totals for world	2,393	2,699,000	.....	2,192	2,763,000	.....

The six largest merchant vessels launched during 1902 were the following:

Vessel.	B. T. Tons.	Builders of Vessel.
Cedric	20,984	Harland & Wolff, Belfast.
Kaiser Wilhelm II	20,100	Vulcan Co., Stettin.
Arabic	15,865	Harland & Wolff, Belfast.
Ionic	12,232	Harland & Wolff, Belfast.
Corinthic	12,231	Harland & Wolff, Belfast.
Mayflower	11,959	Hawthorn, Leslie & Co., Hebburn.

Harland & Wolff again have the honor of constructing the largest number of great vessels, and their aggregate production for the year 1902 amounted to 79,497 tons. This is the largest amount turned out by any single yard, but considering the production by firms, the American Shipbuilding Company, with its seven yards, would lead, as the following figures of the production of the six leading shipbuilding firms of the world indicate: The American Company (seven yards), 132,197 tons; Harland & Wolff, Belfast, 79,497; Workman, Clark & Co., Belfast, 75,932; C. S. Swan & Hunter, Newcastle-on-Tyne, 58,322; Russell & Co., Port Glasgow, 55,585; Armstrong, Whitworth & Co., Newcastle-on-Tyne, 52,039.

CONSTRUCTION IN THE UNITED STATES (FISCAL YEARS ENDING JUNE 30).

Geographical Distribution.	1901		1902	
	Number.	Gross Tonnage.	Number.	Gross Tonnage.
Atlantic and Gulf coasts	823	236,948	(a) 973	237,063
Pacific Coast	271	54,568	(b) 224	53,059
Northern lakes	175	169,085	133	168,873
Western rivers	311	22,888	161	9,836
Total	1,580	483,489	1,491	468,831

(a) Including 3 vessels of 72 tons Porto Rican. (b) Including 1 vessel of 44 tons Hawaiian.

CONSTRUCTION IN THE UNITED STATES (FISCAL YEARS ENDING JUNE 30).

POWER AND MATERIAL.	1901		1902	
	Number.	Gross Tonnage.	Number.	Gross Tonnage.
Sail—				
Wood	514	104,419	578	89,292
Steel	12	21,746	3	8,406
Steam—				
Wood	405	37,463	477	37,245
Iron and steel	101	236,128	102	270,932
Canal boats	79	9,078	44	4,539
Barges—				
Wood	465	69,830	285	57,392
Steel	4	4,825	2	1,024
Total	1,580	483,489	1,491	468,831

Number and tonnage of vessels built in the United States during the calendar year 1902, as compiled by the commissioner of navigation:

	WOOD.				STEEL.				TOTAL.	
	Sail.		Steam.		Sail.		Steam.			
	No.	Gross.	No.	Gross.	No.	Gross.	No.	Gross.	No.	Gross.
Atlantic and Gulf	514	56,240	271	16,382	9	13,345	62	128,571	856	214,538
Porto Rico	9	137	.....	.....	.....	.....	.....	.....	9	137
Pacific	60	27,078	98	10,384	.....	.....	3	10,970	161	48,432
Hawaii	2	15	2	20	.....	.....	.....	.....	4	35
Great Lakes	11	2,909	49	3,054	.....	.....	44	152,267	104	158,230
Western rivers	1	11	120	5,039	.....	.....	7	2,905	128	7,955
Total	597	86,390	540	34,879	9	13,345	116	294,713	1,262	429,327

Examining these figures in comparison with those for 1901, it will be found that there was a considerable increase in tonnage, but a decrease in the number of vessels, the additions for 1902 amounting to 1262, with an aggregate gross tonnage of 429,327 tons against 1322, with an aggregate gross tonnage of 376,129 in 1901. This implies of course that the vessels constructed were of greater average size. The failure of passage of the Ship Subsidy bill may act as a damper on further shipbuilding, but the United States navy has a programme of construction which will demand the attention of a number of builders. See NAVIES.

SHIPPING MERGER. During 1902 was consummated the consolidation of five great English and American trans-Atlantic steamship lines and the pooling of the two great German lines with the new company. The final arrangements were completed October 1, though the agreements with the English companies had been signed in February, and with the German companies in May and June. The new corporation was incorporated under the laws of New Jersey under the name of the International Mercantile Marine Company. The officers are: President, Clement A. Griscom; vice-president, Right Hon. W. J. Pirrie; directors, C. A. Griscom, P. A. B. Widener, B. N. Baker, John I. Waterbury, George W. Perkins, E. J. Berwind, James H. Hyde, Charles Steele, Right Hon. W. J. Pirrie, J. Bruce Ismay, Sir Clinton E. Dawkins, Henry Wilding, Charles F. Torrey; executive and finance committee, C. A. Griscom, P. A. B. Widener, George W. Perkins, Edward J. Berwind, Charles Steele; British committee, Sir Clinton E. Dawkins, chairman, Right Hon. W. J. Pirrie, J. Bruce Ismay, Henry Wilding, Charles F. Torrey.

The following was announced to be the initial distribution of preferred and common stock and of the cash received from the sale of bonds:

	Cash.	Bonds.	Stock, Preferred.	Stock, Common.	Total.
J. P. Morgan & Co. syndicate	.....	$50,000,000	$2,500,000	$25,000,000	$27,500,000
International and Atlantic Transport	$15,844,000	.....	18,314,000	9,157,000	43,315,000
Leland Line	11,736,000	.....	.....	.....	11,736,000
Working capital	.....	.....	786,000	5,643,000	7,429,000
Balance	22,420,000	.....	38,400,000	19,200,000	80,020,000
Total	$50,000,000	$50,000,000	$60,000,000	$60,000,000	$170,000,000

The preferred stock bears a 6 per cent. cumulative preferential dividend. The common stock is limited to 10 per cent. dividends as long as any gold debentures remain outstanding. The whole of the share capital is held in the names of five voting trustees, J. P. Morgan, Right Hon. W. J. Pirrie, J. Bruce Ismay, P. A. B. Widener, and Charles Steele. The only limitation put upon the voting trustees is that they are not to authorize or consent to any increase of capital of the company or any of its property except with the consent of the registered holders of two-

thirds of the preferred shares. The properties of the White Star and Dominion lines were purchased outright by the corporation, but it was deemed advisable to have them held in an English company, not only to enable the collection of British subsidies but to allay the popular excitement in England with regard to the transfer of British vessels to foreign ownership. An agreement was accordingly entered into with the British government, whereby it was agreed that the British companies should remain British. Accordingly the International Navigation Company (Limited) of Liverpool was formed for the purpose of holding the shares purchased of these companies. This soothed the excited feelings of Englishmen, and at the same time enabled the combine to collect mail subsidy and admiralty subventions upon the fast White Star liners.

An agreement with the shipbuilding firm of Harland and Wolff, of Belfast, Ireland, provided that all construction and heavy repairing necessary to be done in British yards should be given to that company. The builders on their part agreed to give first place to the work of the combine. "Nothing herein contained, however, shall prevent the purchasers from placing orders for new steamers, or heavy repairs, or alterations, reboilering, or re-engining at shipyards in the United States." The cost of the work to the combine is to be determined by the cost of materials, wages, direct expenses, and a due proportion of fixed expenses and establishment charges, as shown by the books of the builders. In case the builders cannot attend to orders in reasonable time, the company may have work done elsewhere.

The contract between the combine and the German companies was in effect as follows: The purpose of the contract is to insure mutuality of interests and to form "a defensive and offensive alliance" "against the encroachments of outside competition." Accordingly these means are adopted: (1) Each party agrees not to acquire, directly or indirectly, shares of the other, but the German lines will pay over to the combine annually, the sum the combine would receive if it owned not to exceed one-quarter of the stock of the German lines (each German company is capitalized at 100,000,000 marks), and the combine will in return guarantee to pay the German lines 6 per cent. on an identical amount. (2) If either party desires to charter additional ships it will give a preferential opportunity to the other. (3) If either party establishes a new line, or develops an old line to the extent of doubling the sailings, the other party shall be entitled, upon the payment of 5 per cent. interest upon one-third of the amount of capital involved, to assume one-third of the total profits or losses resulting. (4) The combine will not touch at German ports without consent of the German companies; nor will it allow more than two of its North Atlantic traders each week to touch at French ports; but if the German companies increase their sailings from French ports, the combine may make proportionate increase. Reciprocally, the North Atlantic traders of the German companies will not touch at Belgian ports, nor will the total number of calls of all such traders at English ports exceed 300 in each year. But the German companies may nevertheless include English ports in making connections not already established by the combine, and also connect with South American, Mexican and West Indian ports, whether or not such connections have already been made by the combine. By a separate

CLASS OF VESSELS.

Knots.	International Navigation Co.		Atlantic Transport Co.		White Star Line.		Dominion Line.		Leyland Line.		Total.	
	No.	Gross Tons.	No.	Gross Tons.	No.	Gross Tons.	No.	Gross Tons.	No.	Gross Tons.	No.	Gross Tons.
20	4	44,600	.....	.....	3	37,223	.....	.....	.....	.....	7	81,823
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
17	.....	.....	.....	.....	3	46,965	.....	.....	.....	.....	3	46,965
16	4	49,324	6	80,402	1	5,004	.....	.....	.....	.....	11	134,730
15	1	6,409	1	6,833	4	29,907	.....	.....	.....	.....	6	43,149
14	5	46,239	4	25,037	1	4,206	.....	.....	9	91 594	19	167,076
13	5	19,849	2	10,460	13	134,562	1	4,827	15	86,020	36	255,718
12	.....	.....	4	32,000	1	8,273	.....	.....	18	91,945	23	132,218
Not ascertain'd	5	14,218	6	28,128	.....	.....	13	105,285	7	25,574	31	173,205
Total	24	180,639	23	182,860	26	266,140	14	110,112	49	295,133	136	1,034,884
Tons.												
Over 20,000	.....	.....	.....	.....	2	41,894	.....	.....	.....	.....	2	41,894
15,000 to 20,000	.....	.....	.....	.....	1	17,274	.....	.....	.....	.....	1	17,274
10,000 to 15,000	10	117,179	6	80,402	10	121,295	3	38,291	5	56,573	34	413,740
8,000 to 9,999	2	17,276	6	48,005	4	36,523	3	27,862	9	79,186	24	208,852
6,000 to 7,999	1	6,409	4	27,658	2	14,358	2	12,984	5	31,973	14	93,382
4,000 to 5,999	2	10,858	3	14,672	7	34,796	6	30,975	18	88,572	36	179,873
2,000 to 3,999	9	28,917	4	12,123	.....	.....	.....	.....	12	38,829	25	79,869
Total	24	180,639	23	182,860	26	266,140	14	110,112	49	295,133	136	1,034,884

agreement between the combine and the Hamburg-American line, the latter is exclusively given the traffic between New York and East Asia and between New York and the West Indies. (5) The North Atlantic saloon passenger traffic of both parties—wherein has lain the essential competition between them—will be arranged by a separate agreement, the object being to pool that traffic. (6) In order to carry on the contract in entire harmony, a committee of four will be appointed, two from each party. The decisions by the committee must be unanimous, but in case of their disagreement, appeal will lie to a board of arbitration. (7) The contract shall be void during any war between Germany and the United States, Germany and England, or England and the United States. (8) The contract is concluded for twenty years, but either party may withdraw at the end of eleven years, if amendments deemed desirable cannot be effected. The Hamburg-American line had in 1902, 66 steamers of 352,548 gross tons; and the North German Lloyd had 32 steamers of 233,858 gross tons employed in trade with the United States. The allied interests, when new ships are completed, will have control of about 1,600,000 tons, or about half the tonnage required for our European trade. Because of its better organization and the superior efficiency of its vessels the combine will, it is estimated, be able to conduct fully 60 per cent. of the transportation (except petroleum in bulk) between the United States and Europe. The preceding table gives the speed and tonnage of the fleets of the constituent companies, as reported by the commissioner of navigation in his report for 1902; vessels contracted for since July, 1902, are not included.

SHOOTING. The season of 1902 witnessed such continued expressions of public sentiment against the practice of using live birds as targets in trap-shooting contests, as to make it appear that the end of the custom is at hand. The grand American handicap, the most important event of its kind in the United States, was held April 2-5, 1902, at Kansas City, Mo., and resulted in a tie of 33 men with clean scores. On the shoot-off, "miss and out," H. C. Hirschy, of St. Paul (29 yards), won with 78 straight kills; C. G. Spencer, of St. Louis (29 yards), was second with 77, and R. O. Heikes, Dayton, Ohio (30 yards) third, with 55. The Intercollegiate Shooting Association tournament was held at New Haven, Conn., on May 30, and was won by Harvard with a team score of 210. Yale was second with 195, Princeton third with 178, and Pennsylvania fourth with 154. C. W. Floyd (18 yards), of New York, won the grand American target handicap at Interstate Park, N. Y., on May 8, with a score of 94 targets out of a possible 100.

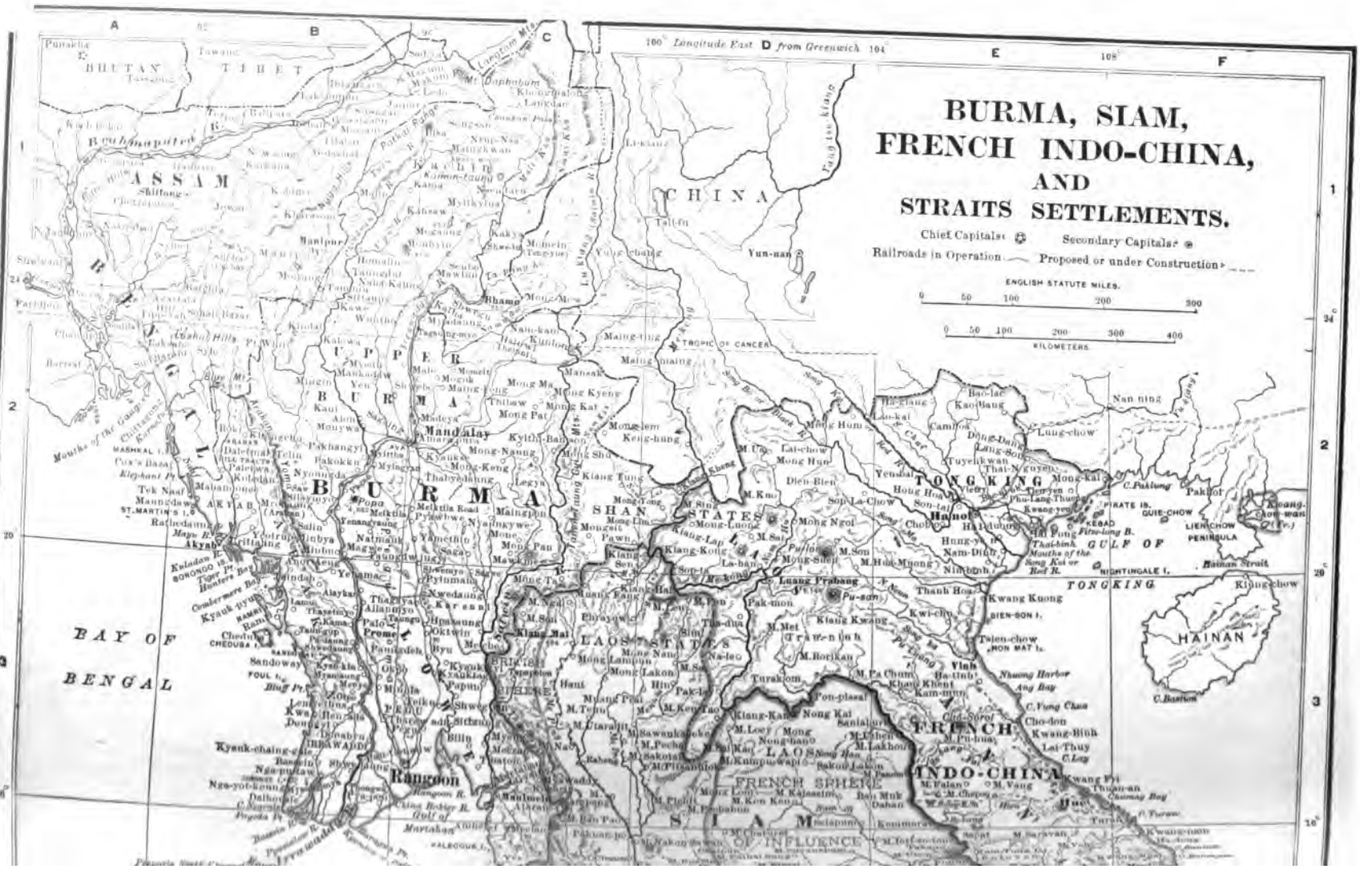
In rifle shooting the most important contest of the year was that for the Palma trophy, representing the championship of the world. It was held on September 13, at Ottawa, Canada, between teams of eight men from Great Britain, Canada, and the United States. The British team won with a score of 1459; second, United States, 1447; and third, Canada, 1373. The contest was at 800, 900, and 1000 yards, 15 shots by each man at each range. The military championships, held under the auspices of the National and New Jersey Rifle associations, were decided at Sea Girt, N. J., August 29-September 6. Some of the contests were as follows, with winners: *Hilton Trophy*, international, teams of 12 men, 200, 500 and 600 yards, 7 shots each, won by New York National Guard, 1137; *Wimbledon Cup*, individual, 1000 yards, 30 shots, won by K. K. V. Casey, Seventy-first Regiment, N. G. N. Y., handicap 18, score 146; *President's Cup*, individual, 200, 300, 500, 600, 800, and 1000 yards, 7 shots each, won by G. E. Cook, First Regiment, D. C. N. G., 189; *Interstate Regimental Team Match*, teams of 12 men, 200 and 500 yards, 10 shots each, won by New Jersey National Guard, 1082.

SIAM, an independent kingdom of southeastern Asia, between Burma and French Indo-China. The capital is Bangkok.

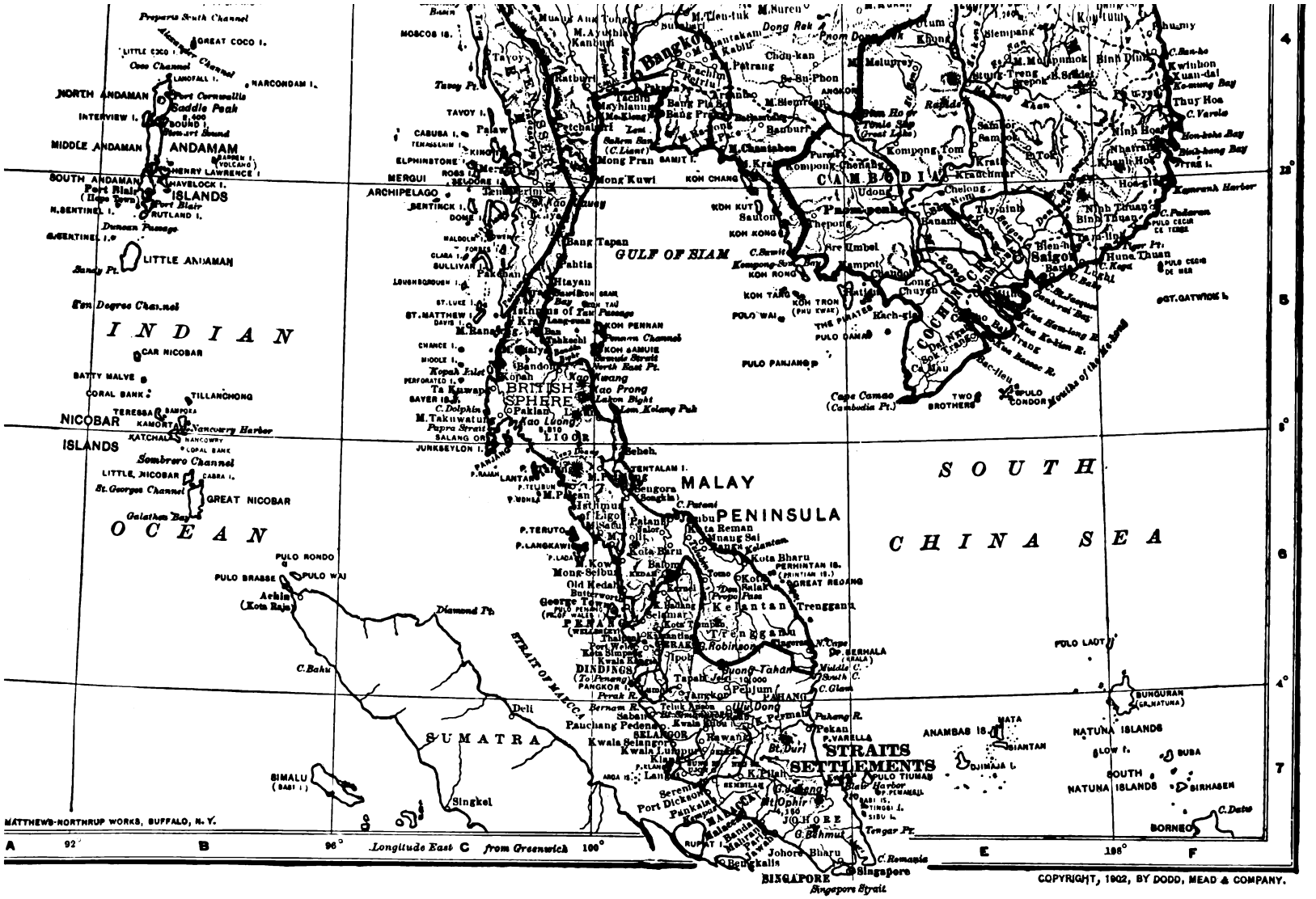
Area and Population.—The area, exclusive of the territory between the Mekong and the Anam hills, which is acknowledged as belonging to France, has been estimated at about 200,000 square miles. The population is variously estimated at from 5,000,000 to 12,000,000, half of the latter figure probably being a conservative estimate. Chinese are increasing rapidly in numbers, especially in Bangkok, which has perhaps 600,000 inhabitants. The Siamese, who are Buddhists, are in general indifferent to Christian missionary effort. Except perhaps in the higher stratum of society the standard of morality is good. Most males are able to read and write.

Government.—The executive authority is exercised by the king, who is advised by an appointed ministry (which is the real power in the state) and an appointed legislative council. The king in 1902 was Chulalongkorn I., who succeeded to the throne as supreme king upon the death of Mongkut in 1868. George Washington, cousin of Chulalongkorn, was second king from 1866 until he died, in 1885, since which time there has been only one monarch. Connected with the governmental administration are about 190 foreigners, of whom about 90 are British and 35 Danish. There is a standing army of 5000 men. The navy is inconsiderable.

Finance.—The principal sources of revenue are customs and taxes on opium, spirits, and gambling. The tax revenues are farmed out, that from gambling largely



BURMA, SIAM, FRENCH INDO-CHINA, AND STRAITS SETTLEMENTS.



to Chinese. The government has adopted the policy of gradually abolishing the taxation of gambling houses. The unit of value is the silver tical, worth 60 per cent. of a Mexican dollar, or 25.02 cents on October 1, 1902. In the fiscal year 1899 revenue and expenditure amounted to 28,496,033 ticals and 23,787,702 ticals respectively; in 1900, 30,022,640 and 27,052,717 respectively; in 1901, 35,611,303 and 31,841,254 respectively. Estimated revenue and expenditure for the fiscal year 1902 were: 36,166,739 ticals and 38,074,288 ticals respectively; for 1903, 39,000,000 and 38,971,271 respectively. There is no public debt and the treasury has a comparatively large balance. In October, 1902, it was reported that the government, with the assistance of the Hong Kong and Shanghai Bank (British), had issued a quantity of legal-tender paper money. This, it was stated, would at first be covered by an actual gold reserve, which, as the credit of the country should become more firmly established, would be diminished and the coin thus withdrawn invested in foreign securities. A measure preliminary to the establishment of the gold standard, which was supported by the British financial adviser to the government, became law on November 27, 1902, when the mints were closed to the free coinage of silver. The value of the tical was fixed (December 12) at one-twentieth of a British sovereign, or 24.3325 cents. If the new monetary standard is successful, the profits arising from the minting of silver ticals will be set aside as a special reserve fund for the purpose of establishing a gold currency.

Industry, Commerce, etc.—The principal products are rice, teakwood (of which Siam produces one-fourth of the world's output), sandalwood, rosewood, fruits, and garden produce. The trade of Bangkok, which probably constitutes more than 85 per cent. of the foreign commerce of the country, amounted in 1899 to £2,532,137 for imports and £3,123,775 for exports; in 1900 the imports and exports were valued at £2,576,540 and £3,087,819 respectively; in 1901, £2,805,386 and £4,366,967 respectively. Of the imports cotton goods formed more than one-fifth, and metals and machinery more than one-tenth. The rice export was valued at about £3,444,000. A considerable amount of teak finds its way down the Salween into Burma, but that exported from Bangkok in 1901 amounted to 43,735 tons, valued at £240,864. The commerce is largely with Great Britain and Germany.

A railway, a private line 17 miles long, connects Bangkok with Paknam. A government line connects Bangkok with Khorat, 165 miles distant; from a point on this line, 57 miles from Bangkok, a branch line is in operation to Lopburi, 26 miles. An extension of this line to Chiengmai in the northwest (about 600 kilometres, or 373 miles) is under construction. Another government line, running from Bangkok southwest to Pechaburi via Ratburi, was under construction in 1902 and, it was hoped, would be completed in the following year. Up to the end of 1901 the government had expended over 26½ million ticals on railways.

Native Outbreaks.—It was reported that on April 21, 1902, 15,000 Siamese rebels, of whom 300 were armed with rifles, fled across the Mekong and attacked the French post of Savan Nakhek. They were repulsed and pursued by the French, who entered protest with the Siamese government. The latter disclaimed responsibility for the acts of outlaws and rebels. Later in the year more serious outbreaks, farther to the north, were reported, due apparently to exactions of government agents. Early in August news came that 600 Shan tribesmen had seized the town of Muang Pray and killed twenty-five Siamese civil officials. About 2000 troops were dispatched thither and several encounters took place, but in November the insurgents were entirely routed.

France and Siam.—The forward policy of France, whose ambitions are supported by Russia and only weakly protested against by Siam's real but quiescent friend, Great Britain, seemed in the summer of 1902, to contemplate the annexation to Indo-China of all the territory in the eastern part of the country not guaranteed to Siam by the Anglo-French agreement of 1896. But on October 9, 1902, there was signed at Paris a treaty between France and Siam which, if ratified, would indicate a less aggressive policy on the part of the French. What amounts to French encroachment upon Siam dates from 1893. After an unwarrantable course of action, notably the fight at Paknam, into which the Siamese were tricked, France took over by the treaty of October 3, 1893, most of the territory east of the Mekong, exacted from Siam a pledge to exert no military force within 25 kilometres of the right bank of that river, and occupied "temporarily" the port of Chentabun. By the above-mentioned agreement of 1896 the integrity of the most valuable part of Siam, the Menam Valley, was guaranteed. But in 1902 the French still held Chentabun; they were making trouble within the 25-kilometre radius, where Siam is helpless; they were enrolling by the thousands natives and Chinese—especially the immigrants from Hainan, which France is seemingly waiting only a pretext to annex—as French "subjects"—all with the apparent purpose of building a French colonial empire from China and the China Sea to British Burma.

The treaty of October 9, which was signed after considerable diplomatic friction

during the preceding summer, gained for France much less than it was supposed she would eventually take. The treaty defined the frontier between Siam and Cambodia, and the frontier between Luang Prabang and the Siamese provinces of Muang Nan and Muang Phichai; it provided for the transfer to France of the provinces of Meluprey and Bassak and the territory east of the above-mentioned frontiers, and for the evacuation by the French, upon such transfer, of the port of Chentabun; it abolished the 25-kilometre restriction upon the Siamese in regard to the Mekong, but provided that if Siam should wish to send troops into her part of the Mekong basin they must be of Siamese nationality and under command of Siamese officers; it also provided that should Siam wish to construct public works, especially railways, in the Mekong basin she must first come to an agreement with France unless such public works can be carried out exclusively by Siamese capital and labor; it finally provided that persons of Asiatic origin born in French territory and resident in Siam are, with their children, but not their grandchildren, under French protection. The territory ceded to France by the treaty has been estimated at upwards of 7700 square miles. The treaty immediately encountered adverse criticism on the part of the colonial group in the French chamber. The imperialists promised serious opposition to its ratification, since, as they declared, the convention guaranteed Siam a larger amount of independence than was assured her under the treaty of 1893. In view of this dissatisfaction, M. Delcassé, the French foreign minister, in December succeeded in negotiating an additional clause, whereby Siam engaged to erect no new fortifications in the provinces of Battambang and Siam-reap, or within 25 kilometres of the right bank of the Mekong.

SIBERIA, a part of Asiatic Russia, has an estimated area of 4,833,496 square miles. The population, which, according to the census of 1897, was 5,727,090, has probably risen to 7,000,000, owing to recent heavy immigration. The average annual immigration from Russia is about 250,000. The principal cities are Tomsk, Tobolsk, Irkutsk, Blagovestchensk, and Vladivostok. Dalny, in Manchuria (*q.v.*) appears to be superseding Vladivostok in importance. The principal agricultural products are wheat, rye, oats, barley, buckwheat, and potatoes. The forests are of enormous extent, but have scarcely been touched except in the valley of the Yenisei. The deposits of gold are extensive, and gold-mining employs about 50,000 persons. Silver, copper, iron, zinc, and coal are also found. The fur trade is of great importance.

Work on the Trans-Siberian Railway was continued throughout the year 1902, and comprised largely the relaying of long stretches of track which, owing to the haste of construction and the dishonesty of contractors, revealed formidable defects. Wooden bridges were replaced by structures of iron, and many miles of double track were laid. Trains are still carried across Lake Baikal by steamers, but the difficulties of winter navigation, when ice-breaking boats must be employed, have led to the survey of a route around the southern end of Lake Baikal, which was completed in the spring of 1902, after four years of work. The line is to run close to the shore of the lake to the village of Kultuk, whence the road will be prolonged to Myssovaya, on the Trans-Baikal section of the railway. It was planned also to parallel the main line from Omsk to Tiumen. At a conference of the representatives of the principal European railway lines, held in Paris late in 1902, it was announced that with the opening of the Eastern China Railway in 1903 uninterrupted communication would be established from western Europe to the Pacific. The first-class fare for the entire line was fixed at about $80.

SIDI ALI, Bey of Tunis, died June 11, 1902. He was born in 1817, and succeeded to the throne in 1882. In that year Tunis was made a French protectorate, and the administration was thoroughly organized in law, finance, and public works. Sidi Ali belonged to a family that has ruled Tunis for more than two hundred years; but the French protectorate has curtailed the power of the Bey. Apart from the organization of the protectorate, the reign of the late ruler was uneventful.

SIGEL, Franz, a German-American soldier, died in New York City, August 21, 1902. He was born in Sinsheim, Baden, November 18, 1824, and graduated in 1843 at the military school of Carlsruhe. During the revolution of 1848-49 in Baden he was an active figure, serving as secretary of war, and as adjutant-general with General Microslawski, and commanding the army during its retreat to Switzerland. He came to the United States in 1852, and taught in a private school until his removal in 1858 to St. Louis, where he became director of the public schools. At the outbreak of the Civil War he became colonel of the Third Missouri Volunteers and brigadier-general of volunteers soon afterward, and early displayed his military genius by winning the battle of Carthage. At the battle of Pea Ridge he commanded two divisions, was made major-general of volunteers in March, 1862, and in the following September took command of the Eleventh Army Corps. The eleventh and twelfth corps of Burnside's command were given him in 1863, and in 1864 he was placed at the head of the department of West Virginia. Owing to a defeat at

New Market at the hands of General Breckinridge he was relieved of his command over the army of West Virginia, but in July, 1864, made a gallant defence of Maryland Heights against a greatly superior force. He resigned in May, 1865, and edited the Baltimore *Wecker* until his removal to New York in 1867. In 1869 he was the unsuccessful Republican candidate for secretary of state, was elected register of New York City in 1871 with the support of the reform Democracy, and by appointment of President Cleveland was U. S. pension agent in New York from 1885 to 1889. At the time of his death he was editor of the *New York Monthly*.

SIERRA LEONE, a British crown colony on the west coast of Africa between French Guinea and Liberia, has an area of about 4000 square miles and a population (1901) of 76,655, of whom 493 were resident Europeans. The capital is Freetown, the greatest seaport in West Africa. The Sierra Leone Protectorate, forming the hinterland of the colony, has an estimated area of 30,000 square miles and an estimated population of 1,000,000. The colony is administered by a governor (Sir Charles Anthony King-Harman since 1900), who through commissioners also controls the protectorate. In 1900 revenue and expenditure amounted to £168,668 and £156,421, respectively; in 1901, £192,138 and £173,457, respectively. Customs are the largest source of revenue. Imports and exports in 1900 were valued at £558,271 and £362,741, respectively; in 1901, £548,286 and £304,010, respectively. Most of the exports, comprising palm kernels, cola nuts, palm oil, rubber, and ginger, are brought from the hinterland. Adverse trade conditions have been due largely to severe restrictions in the neighboring French territory; it is expected, however, that economic conditions will be greatly improved through railway construction. A railway is building from Freetown to Bo; early in 1902, 76 miles were open to traffic, and the work was proceeding steadily. Efforts have recently been made to establish schools for Mohammedans, who, it is hoped, without reference to their religious belief, may be trained in British civilization and ideas. Slavery is virtually extinct. In the protectorate it appears that there is no longer any serious objection to the payment of the hut tax, which was the principal cause of the native insurrection of 1898. According to a British authority, this tax has come to be regarded by the natives as "a cheap equivalent for the blessings of good government," and there have been few recent cases where pressure was needed for its collection.

SILK INDUSTRY. The silk industry was fairly active during 1902, especially in the United States, where the imports of raw silk were greater than ever before. The exports from Japan and China during the silk season of 1901-02 (July 1 to June 30) were greater than in the previous season, as will be seen from the following statistics:

Exports from	1900-1901 Kilogrammes.	1901-1902 Kilogrammes.
Shanghai (including Tussah)	4,620,100	5,042,700
Canton	1,964,600	2,136,000
Yokohama	4,121,900	4,504,900
Total	10,706,600	11,683,600

In Europe the crop was considered hardly an average one, and comparatively high prices were demanded for the raw silk, while reports were circulated of a shortage in the Shanghai product. This led to a gradual rise in prices, so that at the end of the year raw silks and silk products were higher than at the beginning. The estimate of the world's crop, prepared by the Silk Association of Zurich, indicates a decrease in the product for the year, as may be seen from the following table:

World's Production of Raw Silk.

Silk Season.	Kilogrammes.	Pounds.	Silk Season.	Kilogrammes.	Pounds.
1897-1898	14,123,000	31,135,565	1900-1901	16,148,930	35,600,000
1898-1899	11,430,000	31,812,378	1901-1902	17,127,000	37,757,784
1899-1900	16,767,000	36,964,528	1902-1903	16,687,000*	36,778,160

*Estimated.

The silk market in general depends upon national prosperity, consequently far greater activity was experienced in the United States, where business conditions were good, than in Germany, where an industrial depression marked the year. Elsewhere in Europe conditions were hardly normal; so to the United States one must look for the most active business. Here the imports for the year were not only greater than in 1901, but were again the largest ever recorded, the increase being distributed among all the countries supplying the United States with raw silk except

Japan, from which about one-half the supply is received. The imports for the calendar year, as compared with those of the previous year, are as follows:

Year Ending Dec. 31.	1901			1902		
	Bales.	Pounds.	Inv. Value.	Bales.	Pounds.	Inv. Value.
Strictly European	20,105	2,680,740	$10,166,584	23,677	3,183,520	$12,633,941
Asiatic reshipped by Europe	126	16,874	88,107	753	100,384	239,536
Japan	49,636	6,618,136	21,945,104	45,762	6,101,466	21,591,262
Canton	5,424	723,188	1,816,695	8,262	1,101,487	2,889,128
Shanghai	14,900	1,986,606	6,277,843	18,240	2,432,025	7,810,165
Total picul bales*	90,191	12,025,546	$40,244,333	96,894	12,918,882	$45,164,062

*133⅓ pounds each.

The most conspicuous feature of the year was the strike of the silk dyers in Paterson, N. J., during April, May and June. This necessitated the closing of the mills and the throwing out of employment of many operatives, and the consequent curtailment of production. This was estimated at $9,000,000 worth of finished goods, and was severely felt by the consumers, though it of course tended to keep prices up.

The following table, prepared by Messrs. Chabrieres, Morel and Company, of Lyons, is interesting as showing the raw silk production of the world, together with the extent to which the material is manufactured by the various countries. The table is based as far as possible on 1901-02 statistics:

	Production.	Consumption.
Europe.	*Kilogrammes.*	*Kilogrammes.*
France	700,000	4,000,000
Italy	4,412,000	1,000,000
Switzerland	50,000	1,550,000
Spain	82,000	200,000
Austria	204,000	725,000
Hungary	115,000	.....
Russia and Caucasus	400,000	1,400,000
Bulgaria, Servia and Roumania	88,000	.....
Greece and Crete	60,000	15,000
Salonica and Adrianople	200,000	.....
Germany	.....	2,800,000
England	.....	800,000
United States	.....	4,900,000
Asia.		
Brusa	400,000	50,000
Syria	450,000	100,000
Persia	330,000	165,000
Turkistan	820,000	700,000
China	11,280,000	6,435,000
China, Canton	4,000,000	2,000,000
Japan	7,300,000	3,000,000
India	1,200,000	1,400,000
Tonquin and Anam	1,000,000	900,000
Africa.		
Egypt	.....	180,000
Tripoli and Morocco	.....	100,000
Algeria and Tunis	.....	75,000
Other countries and balance	.....	596,000
	33,091,000	33,091,000

SILVER. The most striking feature of the silver mining industry in 1901 and 1902 was the maintenance of a high rate of production, in spite of the steady decline in the market price of the metal. The average price of silver at New York for 1900 was 61.33 cents per ounce; for 1901, 58.95 cents, and for 1902, 52.16 cents per ounce, while the monthly averages show a falling off from 64.14 cents for December, 1900, to 48.03 cents for December, 1902. This marked decline was due to the decreased demand for silver for coinage purposes, especially in China and India, and it is not probable that there will be any improvement in the situation within the immediate future. On the other hand, the payment of the Chinese indemnity will necessitate the export of silver from that country to an extent that is likely to unsettle the market conditions throughout the world. The fact that the metal is produced mostly as a by-product in the smelting of gold, lead, and copper ores is the cause of the large output during periods of marked depression. The world's production of silver in 1901 is estimated by *The Mineral Industry* at 170,565,304 ounces. The output in 1902 probably showed a small increase.

The production of silver in the United States in 1901 and 1902 (estimated) is shown in the following table, compiled by the bureau of the mint:

	1901		1902	
	Troy Ounces.	Commercial Value.	Troy Ounces.	Commercial Value.
Alaska	47,900	$28,740	56,719	$30,061
Arizona	2,812,400	1,687,440	3,170,000	1,680,100
California	925,600	555,360	907,156	480,793
Colorado	18,437,800	11,062,680	17,142,857	9,085,714
Idaho	5,542,900	3,325,740	6,000,000	3,180,000
Michigan	81,000	48,600	81,000	42,930
Montana	13,131,700	7,879,020	13,000,000	6,890,000
Nevada	1,812,500	1,087,500	4,000,000	2,120,000
New Mexico	563,400	338,040	563,400	298,602
Oregon	160,100	96,060	120,000	63,600
South Dakota	78,000	46,800	344,100	182,373
Texas	472,400	283,440	472,400	250,372
Utah	10,768,800	6,456,480	12,000,000	6,360,000
Washington	344,400	206,640	680,000	360,400
Other States	43,100	25,860	28,452	15,080
Total	55,214,000	$33,128,400	58,566,084	$31,040,025

SIMAR, Hubertus, Roman Catholic archbishop of Cologne, Germany, died in that city, May 24, 1902. He was born in Eupen, Rhenish Prussia, in 1835, and after theological training at Bonn and Munich, was called to the chair of Catholic theology at the former university in 1864, and in 1880 assumed there the professorships of dogmatics and apologetics. While bishop of Paderborn, a dignity to which he was elected in 1891, he displayed great patriotism and was prominent among the advocates of German naval expansion; and at the death of Cardinal Krementz in 1899 succeeded to the see of Cologne. He was installed in 1900.

SIMMONS COLLEGE, Boston, Mass., was established in 1899, in accordance with the provisions of the will of John Simmons, of Boston (a merchant who died in 1870), as an institution in which instruction in such branches of art, science and industry might be given as would best enable women to earn an independent livelihood. It was opened in 1902 under the presidency of Henry Lefavour, Ph.D., LL.D., the first class numbering 146. It offers a complete course of four years, shorter technical courses for students having adequate preliminary training, and partial courses. Instruction was begun in October in household economics, secretarial work, library training and science preparatory for teaching, for medicine or for nursing, and other departments are to be added. The college has under consideration plans for departments of applied art, nurse training, and agriculture and horticulture. For the first year a part of the instruction is given in the Massachusetts Institute of Technology and a part in the college house in St. Botolph Street. The permanent college buildings will be erected on the Parkway in the Back Bay Fens. The tuition fee is $100. The faculty in 1902 numbered 25, of whom several were officers of the Institute of Technology. The endowment was $2,052,000, the building fund $750,000, and the gross income $112,000.

SIMPLON TUNNEL. See Tunnels.

SKATING. In ice-skating the speed championships of the United States and Canada were decided at Verona Lake, N. J., January 31 and February 1, 1902. The different events were won as follows: Half-mile, P. Sinnirud, Verona Lake, 1 minute 25 2-5 seconds; one mile, M. Wood, Verona Lake, 3 minutes 7 1-5 seconds; three miles, M. Wood, 10 minutes 19 4-5 seconds; five miles, P. Sinnirud, 17 minutes 17¾ seconds; ten miles, P. Sinnirud, 37 minutes 4 1-5 seconds. The National Amateur Skating Association held its novice figure-skating contest at the St. Nicholas Rink, New York City, March 20, and the contest for seniors at the Clermont Avenue Rink, Brooklyn, N. Y., on March 21. The former was won by W. Valentine, New York City, with a total of 46 points, followed by I. A. Sankey and A. C. Brown, both of Brooklyn, with 42 points. In the senior event the winner was W. F. Duffy, of New York City, with 104 points; second, I. A. Sankey, 83 points, and third, W. Valentine, 77 points.

SLEEPING SICKNESS. The School of Tropical Medicine has issued a report on sleeping sickness, which in 1902 was devastating Uganda. Though it was recognized only a few years ago, it is estimated that 20,000 to 30,000 persons have already perished from it, and the disease is spreading with increased virulence. Egypt is threatened if it spreads north. Scientific reports describe sleeping sickness as probably a meningitis. It is almost invariably fatal. It is contagious and its spread is assured by the crowding of many individuals in the same huts. Its large death rate in many large and thickly populated districts makes the outlook very gloomy.

Prevention of the spread of the disease is secured only by isolation of the cases. Lately a bacillus, or diplobacillus, has been described by Broden as the cause of sleeping sickness. Van den Corput believes that the disease is due to the accumulation of toxins in the system; and Alexander Crombie, in the *Journal of Tropical Medicine,* narrows down the cause of the symptoms to disease affecting the glands which receive the lymph from the brain as the only ones whose obstruction would presumably give rise to the phenomenon of somnolence. This writer suggests that the deep cervical glands are the most likely seat of the essential condition, which is probably caused by the presence of the parental form or the aborted ova of filaria perstans. Still another theory is advanced by Hans Ziemann, who believes that the disease is caused by a toxic material ingested with manioc (or cassava) taken as food. This is not poisonous if properly cooked, and the author believes the disease will disappear if general instructions as to the preparation of manioc are given to the population. He considers sleeping sickness an intoxication like pellagra, a malady engendered by eating partially fermented grain.

SMITH COLLEGE, Northampton, Mass., founded 1871, an undenominational institution for the higher education of women, had in 1901-02 a student registration of 1048 and 90 instructors. The income for the year was $308,000, and the gifts to the college were greater than during any previous year of its history, amounting to $211,000. The most noteworthy financial event of the year was the successful effort to meet the condition of Mr. J. D. Rockefeller's offer of $100,000, half to be added to the general endowment fund and half to be applied to the erection of an assembly hall, provided the friends of the college would raise an equal amount. As a result of the movement $113,187 were raised, of which undergraduates contributed $7000, and $44,500 were received through the alumnæ committee. The new requirements for admission went into effect at the beginning of the year, and only those were admitted who were prepared to pursue courses leading to the degree of A.B. The effect of the new schedule, as was anticipated, was to lessen the number of students who were able to pass the examinations.

SMOKE PREVENTION. The shortage of anthracite coal due to the coal strike of 1902, with the consequent greatly increased use of soft coal, made the smoke nuisance in some cities almost unbearable; and in others, where soft coal had been but little used, the first real trouble with the smoke evil was experienced. The progress of smoke prevention efforts can best be studied in some city where the use of soft coal is the rule rather than the exception. St. Louis falls in this class. In 1901 State and municipal legislation was secured which resulted in the establishment of an organized smoke abatement department, with Mr. C. H. Jones as chief smoke inspector. The legislation in question prohibited the discharge of dense smoke into the open air within the corporate limits, declared such discharge a public nuisance, and provided a penalty of not less than $25 nor more than $100 for proved violations of the ordinance, or for interference with the smoke inspectors while in the discharge of their duties.

SOAPSTONE. See MINERAL PRODUCTION.

SOCIALISM. Several years ago the terms socialist and anarchist stood for exactly the same idea with people generally. The socialists have taken particular pains to show their utter disagreement with the anarchists as to the ultimate end to be attained. It is true that the two in principle are diametrically opposed; and in the means employed for putting in operation their schemes, the two movements have nothing in common. But the effect produced by the socialist propaganda upon the inflammable masses does not differ much from that produced by the doctrines of anarchism. The riots and bloodshed in Belgium, Italy, and Sweden are the ripened fruit of the doctrines of revolutionary socialism. The socialists preach universal brotherhood and love on one hand, and the universal "Klassenkämpfe" and oppression by the capitalists on the other. The notion is prevalent that the socialists have receded from their revolutionary principles and are cooperating with every party favoring a larger measure of public control. This is not quite true. For some years there was a movement toward "opportunism" or "state socialism," *i.e.*, a willingness to support the candidates of any party supporting any measure of a socialistic tendency. A strong reaction has set in, and now the out-and-out socialist is even more bitter against the "opportunist" than against the bourgeoisie.

Socialism in the United States.—The socialist movement has never had a strong hold on the laborers in America for obvious reasons. The first national socialist campaign in the United States was in 1888, when a vote of 2068 votes was cast. In the congressional elections of 1890 they cast 13,331 votes; in 1892 the vote rose to 21,157; in 1894 to 33,133; in 1896 to 46,564; and in 1898 to 91,749. At this point the party split; the radicals, retaining the name Socialist Labor party, attacked the trade unions because they were too conservative. The other branch, which is called the Socialist party, or the Social Democratic party in New York State, supports the

trade unions and conducts a campaign of propaganda and education. In the presidential election of 1900 the Socialist Labor party polled 34,191 votes, while the Social Democratic party, with Eugene V. Debs and Job Harriman to head the ticket, polled 97,730. In 1902, the vote rose to 231,425, a gain of 137 per cent. The following is the vote by States for 1900 and 1902:

State.	1900	1902	State.	1900	1902
California	7,572	9,592	Nebraska	823	3,157
Colorado	684	2,857	New Hampshire	790	1,057
Connecticut	1,741	2,857	New York	12,869	25,000
Idaho	.....	1,800	North Dakota	518	1,245
Illinois	9,687	20,167	Ohio	4,847	14,270
Indiana	2,374	7,134	Oklahoma	815	1,963
Iowa	2,742	6,360	Oregon	1,494	3,532
Kansas	1,605	3,236	Pennsylvania	4,831	21,910
Kentucky	760	1,665	South Dakota	169	2,738
Maine	878	1,974	Washington	2,006	4,739
Massachusetts	9,716	33,629	Wisconsin	7,096	15,957
Minnesota	3,065	10,129	Wyoming	.....	552
Missouri	6,128	5,335			

The heaviest vote was cast in Massachusetts, where the vote was nearly quadrupled. As was to be expected, the socialist vote of Pennsylvania was especially heavy, showing a gain of over 400 per cent. These members of the Socialist party were elected to the Massachusetts legislature: James F. Corey, Frederick MacCartney, and William C. Ransden, of Brockton. The first two are re-elected for the third or fourth time, but the last named is elected for the first time. In Brockton, Mass., the mayor, Charles H. Coulter, three of seven aldermen, eight of twenty-one councilmen, and two of three school committeemen are socialists. The town of Haverhill again elected a socialist mayor in spite of the combined opposition of both old parties. Also two councilmen, a school committeeman, and an assistant assessor were elected. Other officers chosen by the Socialists were: In New Castle, Pa.; Marion and Liston, Ind., one councilman each; Battle Creek, Mich., three aldermen; Sheboygan, Wis., four out of sixteen aldermen; Montana, five members of the legislature. Aside from political work, the party has been active. The more radical western trade unionists split off from the American Federation and formed the American Labor Union, which includes nearly all the western miners' unions, with headquarters at Butte, Mont., where the official organ of the movement, the *American Labor Journal*, is issued. *The Worker*, published at 184 William Street, New York, is the official organ of the Social Democratic party of New York. The remnant of the Socialist Labor party still keep up an organization and publish a paper called the *Daily People;* but the party is losing strength and standing. H. Gaylord Wilshire has increased the circulation of his magazine very greatly, and a new illustrated monthly of considerable literary and artistic merit was started during 1902 in New York City. *The International Socialist Review*, a monthly published in Chicago, is the leading organ of the movement in the United States. The Social Democratic party, which is the only socialist party in the United States having appreciable strength, has a propaganda similar to that of socialists everywhere. Their aim is to get control of the machinery of government and by legislation to put their scheme of public ownership into operation at once. Their platform for 1902 demands: (1) The public ownership of all means of transportation and communication and all other public utilities, as well as of all industries controlled by monopolies, trusts, and combines; no part of the revenue of such industries to be applied to the reduction of taxes on property of the capitalist, but to be applied wholly to the increase of wages and shortening the hours of labor of the employees, to the improvement of the service and diminishing the rates to consumers; (2) the progressive reduction of the hours of labor, and the increase of wages; (3) State or national insurance of working people in case of accidents, lack of employment, sickness and want in old age, the funds for this purpose to be furnished by the government, and to be administered under the control of the working class; (4) the inauguration of a system of public industries, public credit to be used for that purpose; (5) the education of all children up to the age of eighteen years, and State and municipal aid for books, clothing and food; (6) equal civil and political rights for men and women; (7) the initiative and referendum, proportional representation, and the right of recall of representatives by their constituents.

"But in advocating these measures as steps in the overthrow of capitalism and the establishment of Cooperative Commonwealth *we warn the working classes against the so-called public ownership movements as an attempt of the capitalist class to secure government control of public utilities* for the purpose of obtaining greater security in the *exploitation* of other industries and not for the amelioration

of the conditions of the working class." That the doctrine of socialism is spreading rapidly among the workingmen is shown by the vote on the resolution introduced by the socialists looking toward the organization of the labor unions into a socialist party in 1903. The resolution was defeated by a vote of 4865 to 4203, the largest vote for socialism yet recorded in the convention of the American Federation of Labor.

Socialism Abroad.—The drift toward "opportunism," so marked a few years ago during the good times, was suddenly checked during 1901 and was almost entirely wanting in 1902. In France the Ministerialist convention held at Tours was so slimly attended that the management refused to give out the list of delegates. The union of the French socialists to support measures of government looking toward the amelioration of present conditions is no longer considered possible, and Jaurès, who was once the leader of this movement, is now opposed to ministerial socialism. The general elections in France found five distinct socialist tickets in the field, while many doubtful candidates called themselves socialists. The count revealed 860,722 straight socialist votes. The number of socialist representatives in the Chamber of Deputies was increased from 43 to 47 out of a total of 581. The national convention of the Parti Socialiste de France was held in Commentry, September 26 to 28. The Socialist party of Germany in 1902 gained strength enormously because of the Agrarian tariff measure. The party now has one central organ, *Vorwaerts;* one scientific review, *Neue Zeit;* fifty-four dailies, ten tri-weeklies, four bi-weeklies, nine weeklies, three fortnightlies, two monthlies, and one woman's paper. The national convention was held September 14, when the election campaign was planned. Large gains were made in the voting strength of the party. The attempt in England to unite the Independent Labor party and the Social Democratic Federation with the Fabian Socialists has not proved successful. The Social Democratic Federation, consisting of the most radical men, soon split off, and it and the I. L. P. held separate national conventions in 1902. A considerable increase in numbers was reported. The trade unions held their annual convention on September 6. A resolution introduced by the Socialists was passed declaring for the collective ownership of the means of production, but the proposition to send delegates to the international congress of Socialists, to be held at Brussels in January, 1903, was rejected. In Italy the Zanardelli ministry came into power through the vote of the Socialists because it was fighting against the attempt to deprive laborers of the right to organize. Discord speedily arose, of course, between the ministry and the more radical Socialists, and *Le Mouvement Socialiste* declared "the harmony between the Socialists and the ministry is ended, and the Socialist group in Parliament no longer soils its conscience with votes of confidence in a bourgeois ministry." The king of Italy declared himself to be a "Socialist" and prepared a detailed programme of nationalization and municipalization. The national convention of the Italian Socialist party was held at Imola, September 6 to 8. The resolution offered by the Radicals, declaring for independent and revolutionary action, was defeated by a vote of 456 to 279. Resolutions were then passed by the same vote, indorsing the policy of opportunism. There were reported 1336 local Socialist clubs with a total membership of 51,415 in Italy, with some scattering members in other countries. The growth in members has been moderate. The elections in Switzerland showed heavy gains for the Socialist party, though no special reason can be assigned for this drift. Socialism in Belgium for the time being is identified with the movement for universal suffrage. The Socialists in the Parliament demanded that every adult man be given the ballot. In case of refusal, they threatened a general strike of workmen. The measure was delayed by the government party, whereupon the Socialists "assisted the deliberations by public demonstrations in which from 50,000 to 200,000 inhabitants of Brussels took part," as a leading Socialist paper put it. The result was terrible rioting and violence. When peace was restored the measure for universal manhood suffrage was defeated by a vote of 84 to 64. The more judicious Socialists admit that the cause has been seriously injured by these violent demonstrations. Strictly speaking, organized socialism cannot be said to exist in Australia. As a fact, however, the labor unions have practically adopted the Socialist programme. The political aims of the Labor Federation of Queensland are: (1) The nationalization of all sources of wealth and all means of producing and exchanging wealth; (2) the pensioning by the State of every child, invalid, and aged person; (3) the just division among all the citizens of all wealth, less that part required for public and common needs; (4) the reorganization of society upon the above lines, to be begun at once and pursued uninterruptedly until social justice is fully secured to every citizen. The difference between this and the Socialist programme is too minute to be discerned. The election in March, 1902, resulted in a choice of 24 labor members of the legislature against 41 chosen by the Capitalist party. In New South Wales the labor unions refused to be identified with the Socialistic movement, but elsewhere

the Socialist element seems to be leading the labor organizations into the Socialist camp. In Victoria, the following programme was adopted by the labor council: (1) One vote to each adult; (2) initiative and referendum; (3) exclusion of undesirable races; (4) old age pensions; (5) uniform industrial legislation; (6) gradual nationalization of the means of production.

SOCIAL SERVICE, AMERICAN INSTITUTE OF, founded in New York in 1902 as an outgrowth of the League of Social Service. The functions assumed by the institute are: To gather from all possible sources facts of every kind which bear on social and industrial betterment; to interpret these facts by ascertaining their causes and effects; for the education of public opinion. The several departments of the institute are as follows: (1) Bureau of information for answering all inquiries concerning industrial and social betterment and many other topics. (2) Investigation. This department when fully equipped will have a corps of trained investigators, capable of making a scientific study of social problems. (3) Illustration, which includes photographs, diagrams, plans of model tenement houses, etc., illustrating industrial and social conditions, and what is being done to improve them. (4) Publication includes the issue of a monthly review, leaflets, and material for the press. (5) Legislation, under which a collection will be made of the laws of civilized States dealing with social and industrial problems. (6) The lecture bureau to be endowed with traveling lectureships for the education of public opinion concerning the objects of the league. (7) Training school for social secretaries, a new profession made necessary by changed conditions of modern industry. (8) Library and archives, which will specialize reports of societies, institutions, and literature dealing with social and industrial problems. (9) The department of security, looking to a lessening of the cost of life and limb and of health in the production of the necessaries, conveniences, and luxuries of civilization. (10) Personal study and research, made available through the institute. (11) International relations for the service of foreign students and tourists. The institute received its charter from the Board of Regents of the State of New York, December 4, 1902, and consists of its 29 incorporators. The associates are men and women who are distinguished for their public services, and known to be deeply interested in social improvement. On the recommendation of the executive committee they are elected for one year to the number of one hundred, and are eligible for re-election. Collaborators are selected from distinguished students of social subjects, and are elected to the number of fifty for one year by the institute. They are also eligible to re-election. President, Josiah Strong; director, William H. Tolman; recording secretary, E. A. McAlpin, Jr., 287 Fourth Avenue, New York City.

SOCIOLOGY. The year 1902 was rich in the literature of sociology, though no epoch-making books appeared. Among general works of sociology must be placed among the first that of the late Professor Daniel G. Brinton, *The Basis of Social Relations.* This book gives the author's well-known theory of the psychological unity of man. The individual mind is but the reflex of the group mind, as his body in every fibre and cell is the repetition of his species and race. The group mind is not a sum of individual minds, but is a distinct entity, though it exists only in individual wills. Altruism is that conduct of the individual which works for the greatest good of the group, which also is the realization of the highest personal aims. The group mind differs from the individual mind in that it is never creative. It is receptive, active, executive, but it must depend on the individual for progressive thought. The single man is powerless, however, without the group to receive his ideas and multiply them. The group is not an organism, but a psychic concept. Comparison of a society to an organism is purely fictitious. There is no birth, growth, decay, and death of a group. A society may live indefinitely if it give the individual the freest opportunity to develop his faculties. The primary factors of progressive variation are: (1) Remembrance; (2) industry; (3) inventiveness; (4) adaptability; (5) receptiveness; (6) forethought. The most startling proposition made by Professor Brinton is that the secret of all improvement is *conscious* effort to improve. "The records of the patent offices are the Sibylline books which will tell the fate of the present great powers in the twentieth century." In marked contrast to Professor Brinton's study in ethnic psychology is *Human Nature and the Social Order,* by Mr. Charles Horton Cooley, of the University of Michigan. "Society and the Individual" is the author's way of expressing the subject of his book. He holds that the individual and society are not distinct or antagonistic entities, but merely different aspects of the same thing. Human life is the essential thing. The same may be said of individualism and socialism as of the words without the *ism.* Every human activity affects both the individual and society. Philosophically there is no difference between individualism and socialism, however convenient they may be to describe theories or programmes of the day.

The question of free will, meaning the power of the individual to choose independently, has no meaning in Mr. Cooley's conception. No distinction can be made between the individual and the social will. Man has the power of choice, but limited by his social environment. The view that society is a composite of individuals is strongly disapproved. "Individuality is neither prior in time nor lower in moral rank than sociality; but the two have always existed side by side as complementary aspects of the same thing, and the line of progress is from a lower to a higher type of both, not from one to the other. If we go back to a time when the state of our remote ancestors was such that we are not willing to call it social, then it must have been equally undeserving to be described as individual or personal; that is to say, they must have been just as inferior to us when viewed separately as when viewed collectively. To question this is to question the vital unity of human life." Mr. Cooley bases his theory of society upon the "personal idea," *i.e.* the image created in the human mind. He maintains that the real things in both aspects of human life are the mental images formed. "The imaginations which people have of one another are the *solid facts* of society, and to observe and interpret these must be a chief aim of sociology. It follows that a man may be more *real* after death than during his lifetime, and the serf who was regarded as a mere animal had no social reality. There is no such thing as an element of society in the sense that a brick is the element of a wall; this is a mechanical conception quite inapplicable to vital phenomena. I should say that living wholes were aspects, but not elements." The difference between Mr. Cooley and Professor Brinton is not merely a difference in terms. Mr. Cooley denies that either society or the individual is a distinct entity. Both are merely aspects of the same phenomena of human life. Individual psychology and social psychology are not mutually exclusive or antithetical, but each embraces all of the other. They include exactly the same phenomena viewed from different standpoints. Brinton maintains that "ethnic psychology" is a thing distinct and apart from individual psychology, though dependent upon it. "Its laws are those of the group only and are nowise true of the individual; it omits wide tracts of activities which belong to the individual and embraces others in which he has no share."

Among other general works may be mentioned Benjamin Kidd's *Western Civilization*, in which is found the author's new conception of evolution which makes efficiency in the future the controlling factor. Mr. Kidd calls this new principle "projected efficiency." He thinks the type which is successful in the present is not successful because it is best adapted to survive in the present, but because of some "larger advantage probably always far in the future to which the individual and the present alike are subordinate." *Anticipations of the Reaction of Mechanical and Scientific Progress Upon Human Life and Thought*, by H. G. Wells, and *Theology and the Social Consciousness*, by Henry Churchill King, are among the books on general sociology. In the realm of political theory, the work by Professor William A. Dunning, of Columbia, *History of Political Theories*, is of first importance. The volume covers the history of political theories from the early Grecian times down to and including Machiavelli, ground which has never before been adequately covered by the historian of political theory. Professor Dunning strongly emphasizes the intimate connection between political theories and political conditions, showing that theories always trail in the rear of accomplished facts. The author travels a road parallel to that on which the economic materialist journeys along, but he does not attempt to point out any relationship between his own interpretation and that of the economist. The Hellenic democracies are fully examined, showing the institutional basis for Plato's philosophy, and the later theory of Aristotle is shown to have been the outgrowth of an imperialistic development in the State. The predominance of the imperial idea is traced through its various phases in Church and State down to the rise of democracy in the Church during the fourteenth and fifteenth centuries. Professor Dunning does not agree with the usual estimate of Machiavelli, but accords him a permanent place among political thinkers. He holds that political science is indebted to the keen, original mind of Machiavelli for the historical method of attacking problems of politics, and for the establishing of politics as a distinct science. The literature on particular problems and aspects of sociology put forth in 1902 was of course much greater in volume than the more general and theoretical literature. The *Reports of the United States Census* constituted the most voluminous addition to statistical literature both economic and sociological. The *Social Evil*, a report with especial reference to New York City, prepared under the direction of the Committee of Fifteen, by Mr. A. S. Johnson, now of Columbia University, is a most sensible and luminous monograph. It is mostly taken up with a historical study of attempts in different countries in all times to control social vice. The conclusions reached are: (1) All systems of repression have failed and must fail. To attempt eradication of prostitution only serves to aggravate the evil. (2) All systems of police

supervision and license have failed and must fail. French and German methods of inspection, unsatisfactory at home, would be impossible here; and, if practicable, would lead to intolerable moral evil by making immorality safe. The report recommends: (1) Abolition of Raines law hotels and other places of amusement which facilitate the demoralization of young girls; (2) the relief of overcrowded tenement houses and protecting poor families from vicious influences; (3) provision of pure and elevating forms of amusements to draw youth from low dance halls and other debasing places; (4) the public must work to raise the wages of working people, especially of girls who must support themselves; (5) a better system of education is needed; (6) prostitutes should not be treated as criminals, but as unfortunates to be helped, not rigorously driven downward; (7) hospitals for the treatment of venereal diseases should be provided; (8) degenerate youth should be detained in asylums or reformatories; (9) public solicitation must be repressed. *The Care of Destitute, Neglected and Delinquent Children,* by Homer Folks, commissioner of public charities, New York City, is another most careful and useful piece of work. Mr. Folks's long experience in charity organization work enabled him to gain the needed materials for his historical treatise on the methods and practices of caring for poor children in the United States. He makes no attempt to compare American experiences with those of other countries, but the history and criticism of our own practices is excellent. A full and carefully selected bibliography is added. Mr. Folks treats of conditions at the beginning of the nineteenth century; public and private care down to 1875; removal of children from almshouses; the State school and placing out system; the county children's home system; public support in private institutions; boarding out and placing out; laws and societies for the rescue of neglected children; private charities for destitute and neglected children, 1875-1900; delinquent children; present tendencies. *Crime in Its Relations to Social Progress,* by Arthur Cleveland Hall, of New York City, sometime fellow in sociology at Columbia University, is an optimistic study of the evolution of criminal law. "Often, very often, evil is but good out of its proper time and place." The author attempts to demonstrate the "evolutionary function and usefulness of crime and punishment." Other books worthy of note are: *Democracy and Social Ethics,* by Jane Addams, Hull House, Chicago, a study of conditions and means of reform in the slums of Chicago; *Educated Working Women,* by Clara E. Collett, London, showing the need of better and more practicable education of women; *Homeric Society,* by Albert G. Keller, Yale University; *Studies in Political and Social Ethics,* by D. G. Ritchie, of St. Andrews University, Scotland, containing essays on "Social Evolution," "Equality," "Law and Liberty," "War and Peace," and the "Ultimate Value of Social Effort;" also *Americans in Process,* by Robert A. Wood, Boston. Of foreign books may be mentioned *Die Arbeiterschutzgesetzgebung in den europäischen Ländern,* by Dr. J. H. van Zanten, of Jena, and *La responsibilité pénale,* by Adolphe Landry.

Many articles of importance appeared in the periodicals during the year 1902. A broad, general survey of the field of sociology is given by Lester F. Ward, of the Smithsonian Institution, in a series of articles running through the January, March, and May numbers of the *American Journal of Sociology.* Brief consideration is given to the different ways of treating the subject of sociology: (1) Sociology as philanthropy, the popular conception; (2) as anthropology, the scientific conception; (3) as biology, the aggressive scientific conception; (4) as political economy, the concept of the "Social Economist;" (5) as philosophy of history, a mere science of history; (6) as the special social sciences, simply a term including economics, history, law, etc.; (7) as the description of social facts; (8) as associations of kind; (9) as the diversion of labor; (10) as imitation; (11) as unconscious social constraint; (12) as the struggle of races. Dr. Ward criticises each of these different concepts of sociology, shows that no one of them is a complete science of sociology, but that none of them is to be rejected. All are legitimate parts of the science, and there are many more of equal importance that have not yet been closely enunciated. It would seem, however, that but two underlying principles accounting for the *origin* of society have thus far been enunciated, viz., (1) Consciousness of kind and (2) economic utility. The former is the particular contribution of Professor Giddings of Columbia University, and the latter has been stated with great clearness by the same author. An article entitled *Recent Tendencies in Sociology,* by Edward A. Ross, professor of sociology in the University of Nebraska, makes a somewhat different analysis and reaches somewhat different conclusions. Beginning with Spencer's organic theory of society, Professor Ross makes five distinct divisions of the various theories of society. The theory of Le Bon may be characterized as the theory of hypnotic suggestion as an explanation of the action of crowds and consequently the association of men. Association on the basis of likeness, as enunciated by Tarde, Gumplowicz, and Giddings, is next treated, and the need of a wider term than "consciousness of

kind" to account for the emotional side of association is asserted. "Our behavior towards others is not determined simply by a perception of resemblances shading off to zero, inspiring a sympathy graduated down to indifference." Force of repulsion as well as force of attraction must be considered. Professor Baldwin brings in a new factor to account for the generation of society, viz., a sense of duty leading up to justice,—a factor which Professor Ross has called "social control." As a rival to the *resemblance* theory is the *community of interests* theory. The one accounts for union of men because of physical and mental resemblances, the other because of like interests, economic, political, etc. In the second part of his paper Professor Ross develops this idea of the great struggle in society. The ultimate tendency is not toward the elimination of struggle. With higher civilization the struggle will become less violent, but men will not cease to compete groupwise as long as there are differences in men. *The Three Primary Laws of Social Evolution*, by Charles W. MacFarlane, of the University of Pennsylvania, appeared in the May number of the *Annals of the American Academy of Political and Social Science*. The author maintains that "survival of the fittest" is not a complete and satisfactory explanation of evolution. We note that men are forced upward, not downward, in the evolutionary process. The higher type is crowded out by the lower type, but in every case is forced up, not down, by the competition with a lower type. Social progress depends upon the existence of a social surplus. The rate of progress depends upon the rate of increase in the social income, which may be: (1) A decreasing rate of increase; (2) an increasing rate of increase; or (3) a constant rate of increase. The last is the most desirable mode, and will be attained under complete integration of industry. Many special articles of importance appeared in the magazines during 1902. One of the most noteworthy is *Poor Relief in the United States*, by E. Münsterberg, of Berlin, running through the January and March numbers of the *American Journal of Sociology*. It gives the estimate of a German expert on American methods of administering poor relief. He concludes: (1) Corruption must be overcome by civil service reform and creation of State boards of supervision; (2) evils of diversion and want of system are noticeable in all American charities. *The New Movement in Charity*, by S. H. Bishop, of the Brooklyn Bureau of Charities; *The Church as the Maker of Conscience*, by Samuel J. Batten, Morristown, N. J., came out in the March number of the same journal; *The Social Will*, by Alfred H. Lloyd, University of Michigan; *The Evolution of Conscience as a Phase of Sociology*, by Walter L. Sheldon, of St. Louis; and *Work and Play in Adjustment to the Social Environment*, by M. V. O'Shea, University of Wisconsin, in the November number must be mentioned. The government of dependencies takes up the whole May number of the *Annals*.

SOMALILAND, the most eastern part of Africa, on the Gulf of Aden and the Indian Ocean, belongs to Great Britain, France, and Italy. A part of the Somali country is incorporated with Abyssinia.

Somali Coast, a British protectorate lying between the French and Italian dependencies and bordering on Abyssinia, has an estimated area of 68,000 square miles. The number of inhabitants is unknown, but has been estimated at about 240,000. The protectorate is administered by a British resident official. Revenue and expenditure for the fiscal year 1901 were Rs. 334,858 and Rs. 389,557, respectively. (The rupee is worth 32.4 cents.) Imports and exports in the fiscal year 1900 were valued at Rs. 6,787,555 and Rs. 5,885,675, respectively; in 1901, Rs. 5,909,353 and Rs. 5,460,322, respectively.

In 1901 Great Britain, assisted by Abyssinia, carried on military operations against insurgent Somalis led by the "Mad Mullah," Hajji Mohammed Ibn Abdallah. The Mullah, a Mohammedan fanatic, with hostile intent against foreigners, had secured a large following, whose depredations upon neighboring tribes were the immediate cause of British interference. After considerable fighting in May and June, 1901, the British troops under Col. J. E. E. Swayne on July 17 defeated the Mullah's forces near Hassan Ughaz and scattered them. It appeared toward the end of 1901, and more clearly in 1902, that this victory was not sufficiently followed up—that the British foreign office was in too great haste to bring the campaign to an end. For in December, 1901, and during the spring of 1902, there was a recrudescence of the Mullah's power. On May 28 a punitive expedition under Colonel Swayne left Burao, about 90 miles from the port of Berbera. A fortified post was made at Bohetleh, about 120 miles further, whence columns were sent against the enemy, but the Mullah fled into the desert Haud country. This region is under Italian protection, but an arrangement was made whereby Italy allowed the British to continue their pursuit within the Italian sphere. Late in July news came of the defeat by a column under Colonel Cobbe of adherents of the Mullah, who were said to have lost 150 men killed and about 4000 camels and

12,000 sheep captured, while another success was reported of Major Phillips. Another victory, resulting in the capture of 1800 camels, occurred on August 18. On September 3 Colonel Swayne's expedition entered the Haud, and about 3000 camels and 10,000 sheep were reported captured. A month later the expedition advanced toward Mudug. It numbered about 2500, comprising about 1500 Somalis, some West African troops, and a few Sikhs, while the Mullah's following was estimated at about 40,000. On October 6 the British force was attacked by the Mullah at Erego. After twice repulsing the enemy and losing two officers killed and two wounded and about 150 men, Colonel Swayne was forced to retreat. The reverse seemed due largely to the unsteadiness of the Somali levies. Although hampered by his wounded and suffering from want of supplies, especially of water, Colonel Swayne reached Bohetleh in safety. The Somali contingent was disbanded. Colonel Swayne, who was British commissioner in the protectorate as well as commander of the expedition, was recalled about November 1, 1902, to act temporarily as adviser to the foreign office in London, and Gen. W. H. Manning (then in London), who was commandant of the Central Africa Regiment, was appointed to the chief command in Somaliland. Reinforcements from the Indian army were ordered. It was feared that the work of pacifying Somaliland had been entirely undone by the defeat at Erego.

Somali Coast and *Obock*, a protectorate and a colony respectively of France, have an area of about 5000 square miles and a population of about 22,000. The territory is administered by a governor resident at Jiboutil. Additional territory embracing an area of perhaps 40,000 square miles, with some 200,000 inhabitants, is under French influence. The estimated cost of the territory to France in 1901 was 337,500 francs, and in 1902, 200,000 francs (of 19.3 cents each). Foreign commerce in 1901 was valued at 7,335,000 francs for imports and 6,845,000 francs for exports.

The railway building from Jiboutil to Harar (Abyssinia), 186 miles distant, which was practically completed in 1902, has been the source of no little apprehension to the British. At that time the funds of the construction company (the Ethiopian Railway Company) were depleted. In February, however, a convention had been concluded between the protectorate and the company, whereby an annual subsidy of 500,000 francs was guaranteed the company for fifty years; and this was approved by the French government on April 6. The completion of this railway, it was pointed out, would divert the trade of eastern Abyssinia, which was shared by Jiboutil and Zeila (British), to the former, while British political interests would suffer also. Jiboutil already had the advantage of Zeila, since it possesses a large and deep harbor, while the harbor at Zeila is a mere roadstead. To offset the Jiboutil line the construction of a line between Berbera, which unlike Zeila has an ample harbor, and Harar was proposed in 1902. This line, which would probably cost about £500,000, would extend about 60 miles in British territory and the remaining distance in Abyssinian. It was held that aside from the commercial advantage of this line, its political influence, effecting a decrease in administrative expenditure in the British protectorate, would be ample compensation for the interest on the cost of construction. The French hope to extend the Jiboutil line eventually to Adis Ababa.

Italian Somaliland, a protectorate, has an estimated area of 100,000 square miles and an estimated population of 400,000. The inhabitants are engaged largely in pastoral pursuits, but the chief wealth of the country, which is little developed, is the forests of gum and incense-bearing trees. In the fiscal year 1902 imports and exports, stated in Maria Theresa dollars, were 45,011 and 89,052, respectively.

SOUDAN. See FRENCH SOUDAN and EGYPT (paragraph Egyptian Soudan).

SOUTH AUSTRALIA, a state of the Commonwealth of Australia stretching across the entire central portion of the continent from north to south. It has an area, including the Northern Territory, of 903,690 square miles, and its population by the census of 1901 was 362,604, an increase of over 13 per cent. in the preceding decade. The capital, Adelaide, had a population in 1901 of 163,430.

Government and Finance.—The government is administered by a governor appointed by the crown and a cabinet of six responsible heads of departments. The legislature is composed of two houses, a legislative council, whose members are chosen for three years by an electorate possessing a small property qualification, and a legislative assembly elected for the same term by adult suffrage, including women. Primary schools, at which attendance is free and compulsory, are maintained by the state. Their enrollment in 1901 was 69,115. The state revenue and expenditure for the fiscal year 1901 was £2,598,907 and £2,740,805, and for 1902 £2,428,000 and £2,650,000 respectively. The deficit, it was explained, was partly due to the continued drought which had caused a falling off in the railway revenue, which was £115,000 less than the budget estimates. The estimates for 1902-03 placed

the revenue at £2,463,000, and the expenditure at £2,461,800. The state debt on January 1, 1902, amounted to £26,794,835.

Industries, Commerce, etc.—In 1900-01 the total area under cultivation was only 3,279,406 acres. The acreage of the principal crops (1900) was: wheat, 1,743,452 acres; hay, 369,796 acres; oats, barley, and potatoes, 56,045 acres; orchards, 16,000 acres; and vineyards, 20,868 acres. The wheat crop in 1901-02 amounted to 8,012,762 bushels as compared with 11,253,148 bushels in 1900-01, the large decrease being due to the drought. The production of wine reached 1,388,847 gallons in 1900-01. Grazing, one of the most important industries, has suffered incalculably from the drought. The number of sheep decreased from about 5,275,000 in 1900 to 5,000,000 in 1901, and during 1902 the loss was reported to have been even greater. The mineral resources, although probably extensive, with the exception of copper, have been very little developed. The total value of the mineral output in 1900 was £431,289, of which copper comprised £394,446. The value of the imports in 1901 was £7,371,588 as compared with £8,034,552 in 1900. At the same time the exports decreased in value from £8,029,157 in 1900 to £8,015,889 in 1901. The chief exports are wool, wheat, and copper. The length of the state railway lines is 1883 miles, of which 146 miles are in the Northern Territory.

History.—In March, 1902, in accordance with the provisions of the measure passed in 1901 for the reduction of the size of the cabinet, it was reconstituted with four members, Mr. J. G. Jenkins retaining his position as premier and chief secretary. At the general elections, May 3, all the ministers were re-elected and the strength of the parties in the legislature remained about the same, with the exception of the Labor party, which lost three seats. At the opening of the parliament, July 3, Lord Tennyson said that the expected deficit would be met by the issue of new treasury bills. It was further proposed to increase the land-tax, reform the income-tax, and impose additional stamp duties. In October the government bill, providing for the construction of a trans-continental railway (see following paragraph) across the state on a land-grant basis, was passed without opposition, and in November a loan act, authorizing the government to borrow £490,000, was passed. Notwithstanding the continued drought and the large increase in the number of unemployed, there was little labor agitation, that movement having less strength in South Australia than in any of the other Australian states.

The Trans-Continental Railway.—During 1902 the government of South Australia advertised for bids for the construction of a trans-continental railway, which is intended to complete the rail connection between Port Darwin on the north and Adelaide on the south. The road will be entirely within the boundaries of the state of South Australia, which, including the northern region known officially as the Northern Territory of South Australia, stretches across the entire Australian continent from north to south. Already there is in operation in the Northern Territory a line from Port Darwin to Pine Creek, 146 miles to the southward. In South Australia proper there is a railway open from Adelaide to Oodnadatta, 688 miles to the north, and within less than 200 miles of the Northern Territory limits. The proposed line is to fill the gap of 1063 miles remaining between Oodnadatta and Pine Creek. The state proposed to build the road on a land-grant system. Bids will close May 2, 1904, and bidders must state how much land is asked per mile for the construction and the time within which they will complete the work. The conditions imposed provide: (1) that the rails shall be of steel of a weight of not less than 60 pounds to the yard, and the construction on the 3-feet 6-inch gauge; (2) that the work shall be completed in eight years, the minimum of a single year's construction to be 100 miles; (3) that the company shall always maintain a freight and passenger service with trains at least once a week from each terminus; the rates for passenger and freight traffic are not to exceed those on the government lines. The successful bidder is given a right of purchase of the railway from Port Darwin to Pine Creek, at a price to be fixed by arbitration. The state reserves the right to purchase the entire line at any time at a valuation to be fixed by arbitration in case of disagreement. The land-grant, which is to be made in fee-simple and which is to be exempted from state taxation for a ten-year period, is limited to a maximum grant of 75,000, acres per mile of road. At this rate the grant would amount to over 79,000,000 acres of land, an area greater than that of the entire Kingdom of Great Britain and Ireland, and would make the railway corporation the greatest private land-owner in the world. The total cost of construction is estimated at £5,000,000 ($25,000,000).

SOUTH CAROLINA, a southern Atlantic State of the United States, has an area of 30,570 square miles. South Carolina is one of the original thirteen States. The capital is Columbia. The population in 1900 was 1,340,316, and in June, 1902, as estimated by the government actuary, 1,379,000. The populations of the three

largest cities in 1900 were: Charleston, 55,807; Columbia, 21,108; and Greenville, 11,860.

Finance.—There was a balance in the treasury of South Carolina on January 1, 1902, of $237,743.25; the receipts during the year were $3,976,659.51, and the expenditures, $3,783,605.05, leaving a balance at the end of the year of $430,797.71. At the end of the year the unfunded debt was $332,208.64, and the funded debt $6,514,674.14. The borrowing of money during the year to meet current expenditures was largely due to the fact that the legislature, while appropriating more money than in previous years, had declined to raise the State tax levy of five mills. Another cause of difficulty had arisen from the custom of extending the time during which State taxes might be paid; the extent to which this leniency prevailed being evident from the fact that during the calendar year 1902 more than twice the amount was raised from State taxes lawfully due in 1901 than from those due in 1902. State officials recommended that not only should the State tax levy be raised, but that extension of time should hereafter be denied except in cases of especial emergency.

Agriculture and Industries.—The principal field crops in South Carolina for 1902, as given by the *Crop Reporter*, were: Corn, 1,825,837 acres, 18,988,705 bushels, $13,102,206; winter wheat, 267,673 acres, 1,498,969 bushels, $1,528,948; oats, 216,541 acres, 2,836,687 bushels, $1,673,645; potatoes, 8470 acres, 584,430 bushels, $561,053; hay, 61,938 acres, 75,564 tons, $850,095; tobacco, 34,912 acres, 25,625,408 pounds, $3,331,303.

The director of the mint reported that South Carolina's production of gold amounted in 1902 to $147,928. The State ranked fifth in the value of granite produced in 1901, the output of all quarries for that year being valued at $996,084. Production of phosphate fell off from 321,181 tons in 1901 to 285,625 tons in 1902. The cause of the decrease was low prices due to Florida's competition. The most active industry in the State was the manufacture of cotton fabrics. Fifteen new mills, containing 198,664 spindles and 5436 looms—nearly one-fourth the cotton mill construction of the United States—and two new knitting mills were built during 1902. A notable movement in North and South Carolina cotton industry was the buying up of stock formerly owned by northern capitalists by local investors. In Greenville, South Carolina, local investors purchased over $100,000 worth of stock in local mills within three months.

Legislation.—The regular biennial session of the general assembly of South Carolina convened on January 14 and adjourned February 22, 1902. Among the laws passed were the following: In accordance with a recommendation of the governor, advocating that the existing anti-trust law be made more stringent, a law was passed endeavoring to cover every possible phase of monopoly and to provide for its punishment. A monopoly was declared to be any corporation that attempted to fix or maintain prices, or to fix or limit production, or to sell goods below cost for the purpose of driving out competitors; or if two or more persons or corporations endeavored to control trade by agreeing not to deal with persons outside of their combination, or if such a combination intimidated others in buying or selling, this also was declared a monopoly. A monopoly was expressly declared to be not only a combination of separate companies performing or attempting certain acts, but a corporation or partnership performing or attempting them. If any of these things were done, a fine was to be imposed of from $2000 to $5000, and every day during which the monopoly continued to do them was to constitute a separate offense. Companies convicted under this law were to lose their charters if domestic concerns, or, if foreign companies, were to be prohibited from doing business in the State. By another law witnesses were to be compelled to give testimony and to produce books and documents, but they were themselves to be protected from criminal prosecution as a result of their disclosures. Another corporation law provided that all foreign railroad companies doing or desiring to do business in the State should before June, 1902, become incorporated in South Carolina in accordance with the terms of incorporation as laid down in the law of February 22, 1899. Such companies were required to pay the fees demanded by that act, and at least one of the incorporators should be a resident of the State. Without such incorporation it should be unlawful for foreign railway companies to do any further business in South Carolina.

A municipal law of some interest provided that in cities of from 20,000 to 50,000 inhabitants a board of police commissioners might be established by the mayor and aldermen, to consist of five members, of whom the mayor should be one. The board should have full and exclusive control and management of the police force, should elect the chief of police, and might make all necessary police regulations, and have power to appoint and discharge police officers. In cities of from 20,000 to 50,000, also, municipal courts were established by the legislature to have the judicial powers at present vested in the mayor and county magistrates. The

recorder of the court should be chosen by the mayor and aldermen for a term of four years, and an appeal should lie from the recorder to the city council, or to the county court of general sessions. Another law authorized cities and towns to grant exclusive franchises to water and lighting companies, provided that such franchises receive a two-thirds affirmative vote of the aldermen or common council, that the maximum rate to be charged for the water or light furnished be fixed by the franchise, and that no contract or franchise should run for more than thirty years. Municipal corporations were also authorized to create sewerage commissions for the construction or extension of sewerage plants, and to acquire land and property necessary thereto by condemnation proceedings.

Among other acts passed were the following: An act providing for a board of commissioners for the South Carolina Institution for the Education of the Deaf, Dumb and Blind. An act appropriating $150,000 annually for the payment of Confederate pensions and remedying the defect of the law of 1900 by which such an amount annually was authorized but not appropriated. An act extending the time in which payment of taxes might be made for the fiscal year 1901 to March 31, 1902. Two important recommendations of the governor, one to make elementary school education compulsory, and another to prohibit child labor in the mills of the State, were not acted upon.

Democratic Convention.—The Democratic State convention met at Columbia May 21. The platform demanded the enforcement of present laws against trusts, and the enactment of more stringent measures to compel publicity and prevent stock-watering. Amendments to the tariff laws were recommended, putting the products of the trusts upon the free list in order to take away their monopoly privileges. The convention congratulated Cuba upon her independence, and demanded a policy of liberal commercial reciprocity with the republic. The Philippine policy of the Republican administration was severely condemned.

The Tillman Episode.—On February 22, during a debate on the Philippines in the United States Senate, Senator Tillman asserted that Federal patronage in South Carolina had been parceled out to Senator McLaurin in order to secure his vote for the Treaty of Paris. Senator McLaurin denounced the accusation as a lie, upon which Senator Tillman attacked him, and a fight ensued. The affair caused much excitement throughout the country, and there was much talk of expelling the offending senators. They were censured by the Senate, February 28, and later apologized for their misbehavior. The invitation accorded to Senator Tillman as a member of the naval committee to attend the dinner given by President Roosevelt in honor of Prince Henry of Prussia was cancelled. In retaliation Lieutenant-Governor Tillman of South Carolina sent an insulting communication recalling the invitation of President Roosevelt to present a sword to Major Micah Jenkins, who had served under him in the Spanish war. It was rumored that President Roosevelt's presence at the Charleston exposition would not be agreeable, but the board of directors renewed the invitation. The President accepted and made a speech at the exposition grounds in which he declared that the factional strife between North and South had been completely obliterated, and at the close presented Major Jenkins with a new sword, which had been provided for the occasion.

Elections.—At the regular biennial State election, held November 4, 1902, a full Democratic State ticket was elected. The total vote for governor was: Hayward (Dem.), 31,817; there being no opposition. In accordance with the vote taken at the Democratic primaries, held on August 28, Congressman Asbury C. Latimer (Dem.) is to succeed Senator John L. McLaurin for the full term beginning March 4, 1903. The primaries showed a marked change in the sentiment of the voters by the complete overthrow of the Tillman faction in the State, and the choice of a man representing the "straight out" or "Bourbon" Democrats. The State legislature for 1903 will consist of 41 Democrats in the Senate and 123 Democrats in the House.

State Officers.—For 1902: Governor, M. B. McSweeney; lieutenant-governor, James H. Tillman; secretary of state, M. R. Cooper; comptroller, J. P. Derham; attorney-general, G. D. Bellinger; treasurer, R. H. Jennings; superintendent of education, John J. McMahon—all Democrats. For 1903: Governor, D. C. Hayward, elected for two years, term ending January, 1905; lieutenant-governor, John T. Sloan; secretary of state, J. T. Gantt; comptroller, A. W. Jones; attorney-general, U. X. Gunter, Jr.; treasurer, R. H. Jennings; superintendent of education, O. B. Martin—all Democrats.

Supreme Court for 1902 and 1903: Chief justice, Henry McIver; justices, Y. J. Pope, Eugene B. Gary, Ira B. Jones—all Democrats.

For Congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

SOUTH DAKOTA, a northwestern State of the United States, has an area of 77,650 square miles. The capital is Pierre. The Territory of Dakota was organized

March 2, 1861, and on November 2, 1889, was divided and admitted to the Union as two States, North and South Dakota. The population of South Dakota in 1900 was 401,570, and in June, 1902, as estimated by the government actuary, 414,000. The largest city in 1900 was Sioux Falls, with a population of 10,266.

Finance.—There was held in the treasury of South Dakota at the beginning of the fiscal year ending June 30, 1902, $764,888.46. The total receipts during the year were $2,174,257.47, and the disbursements $2,098,620.53, leaving a balance on June 30, 1902, of $840,525.40. During the year the bonded indebtedness was reduced by $185,800, leaving an outstanding bonded indebtedness of $427,500. At the same time the floating indebtedness of the State amounted to $250,000, making a total indebtedness of $667,500. The permanent school fund, invested and uninvested, amounted at the end of the year to $4,084,566.59. At the same time its unsold lands amounted to 2,570,923 acres, and it was estimated that if sold they would bring some $31,000,000. As stated by the treasurer of the State, a large amount of personalty and intangible property remained untaxed, while the law of 1895 providing for the assessment of the capital stock and franchises of corporations, was entirely disregarded. It was recommended that the taxation of all these classes of property should receive the attention of the legislature.

Agriculture.—The principal field crops in South Dakota in 1902, according to the *Crop Reporter*, were: Corn, 1,577,398 acres, 29,812,822 bushels, $12,223,257; spring wheat, 3,604,347 acres, 43,973,033 bushels, $25,064,629; oats, 692,553 acres, 24,100,844 bushels, $6,989,245; barley, 305,745 acres, 8,927,754 bushels, $3,392,547; rye, 36,726 acres, 690,449 bushels, $283,084; potatoes, 31,801 acres, 2,053,274 bushels, $1,035,441; hay, 185,719 acres, 228,434 tons, $948,001; flaxseed, 427,500 acres, 3,200,250 bushels, $3,655,125.

On account largely of the extraordinary crops, there was a considerable influx of investors and a general rise in land values. The output of the gold mines in the western part of the State increased from $6,601,800 in 1901 to $7,398,057 in 1902. Only Colorado and California produced greater amounts. The Homestake mine produced more gold in 1902 than any other mine in the world. From January to October, 1902, its output was 1,218,000 tons of ore, which yielded $4,303,000. Dividends were reduced from 6 per cent. to 3 per cent., and stock fell considerably during the year. A decrease in the output of silver from $214,655 in 1901 to $182,373 in 1902 was reported. The principal development of the year was the erection of a number of plants for the treatment of gold and silver ores by the cyanide process. In the latter part of the year 125,350 tons of gold and silver-bearing ores were treated in the cyanide plants of the State.

Conventions and Platforms.—The Republican State convention was held at Sioux Falls on June 5. The platform indorsed the policy of the President, condemned combinations and trusts, and advocated arbitration of industrial disputes. The action of the Republican national administration in Philippine affairs was praised, the abuse of United States soldiers for alleged acts of cruelty on service was condemned, the attitude of the members of Congress from the State was approved, and the State administration was declared to be satisfactory.

The Democratic and Populist State conventions were held at Huron on June 25. A fusion agreement was reached, to be in effect for one year, the united forces to be known as the Democratic party of South Dakota. The Populists reserved the right to continue as an organization and to act independently of the regular Democrats at any time. The two parties agreed on a State ticket. The Democratic platform reaffirmed the principles of the Kansas City platform, favored government control of railways and public utilities, and the election of United States senators by direct vote. The Fowler currency bill was denounced, also the text book trust in the State. The State legislature was condemned for changing the Australian ballot system.

The People's party, or Populists, in their platform reaffirmed the principles of the Sioux Falls convention of 1900, and declared their confidence in Mr. Bryan's leadership. They denounced the Republicans for their refusal to sympathize with the Boers and for sending representatives of the nation to the coronation of King Edward. A demand was made for the independence of the Philippines and the election of United States senators by direct vote. Trusts were denounced, also the ship subsidy bill, and the Supreme Court of the State was criticised for deciding to nullify the alleged intent of the Constitution regarding the initiative and referendum by allowing candidates' names to appear but once on a ballot.

Elections.—At the regular biennial State election, held November 4, 1902, a full Republican State ticket was elected. The vote for governor was: Herreid (Rep.), 48,196, and Martin (Dem.), 21,396, giving the Republican candidate a plurality of 26,800. The State legislature for 1903 will consist of 42 Republicans and 4 Democrats in the senate, and 75 Republicans and 10 Democrats in the house.

State Officers.—For 1902: Governor, Charles N. Herreid; lieutenant-governor,

George W. Snow; secretary of state, O. C. Berg; treasurer, John Schamber; auditor, James D. Reeves; attorney-general, John L. Pyle; superintendent of public instruction, E. E. Collins; commissioner of schools and public lands, David Eastman—all Republicans. For 1903: Governor, Charles N. Herreid (elected for two years, term ending January, 1905); lieutenant-governor, George W. Snow; secretary of state, O. C. Berg; treasurer, C. B. Collins; auditor, J. F. Holliday; attorney-general, Philo Hall; superintendent of public instruction, George W. Nash; commissioner of schools and public lands, C. J. Bach—all Republicans.

Supreme Court for 1902 and 1903: Chief justice, Dick Haney; associate justices, Dighton Corson and Howard G. Fuller—all Republicans.

For Congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

SOUTH, UNIVERSITY OF THE, an Episcopal institution at Sewanee, Tenn., chartered in 1857 and opened in 1868, includes preparatory, collegiate, theological, law, and medical departments. It had in 1902 a total attendance of 550 students and a faculty of 62 instructors. Its gross income was $80,000. The library contained 44,000 volumes. The work of transforming Convocation Hall into a library building and its thorough equipment was completed during 1902. Quintard Hall, a three-story building of Sewanee sandstone, was occupied as a dormitory and refectory of the Sewanee grammar school; and much work was accomplished in beautifying the university grounds and approaches by means of landscape gardening.

SPAIN, a constitutional monarchy of southwestern Europe. The capital is Madrid.

Area and Population.—The area of Spain is stated at 197,670 square miles. The population according to the census of December 31, 1900, was 18,618,086 (9,087,821 males and 9,530,265 females), as compared with 18,089,500 in 1897 (8,773,730 males and 9,315,265 females). The legal population was 18,226,040 in 1897 and 18,831,574 in 1900. According to the later census the populations of the largest cities were as follows: Madrid, 539,585; Barcelona, 533,000; Valencia, 213,550; Seville, 148,315; Málaga, 130,109; Múrcia, 111,539; Carthagena, 99,871; Saragossa, 99,118; Bilbao, 83,306; Grenada, 75,900. There were 63,020 emigrants in 1900 and 56,901 in 1901. The established church is the Roman Catholic, of which almost all the inhabitants are adherents. The constitution forbids the public observance of Protestant forms of worship. A large majority of the inhabitants (68.1 per cent. in 1887) are illiterate, and public instruction continues very inefficient. According to statistics published at the beginning of 1902 there were 25,348 public schools, of which 9,313 were for boys, 7,612 for girls, and 8,423 for children of both sexes. The total number in attendance was 1,617,314. There were private schools to the number of 6,181, with an attendance of 166,880 boys and 177,500 girls.

Government.—The constitution places the chief executive authority with the king, who exercises his power through a cabinet of ministers appointed by himself and responsible to the lower chamber of the Cortes. This body, in which together with the king is vested the legislative power, consists of two chambers, the senate, or upper chamber, and the congress, or lower. Members of the former (not exceeding 360 in number) are partly hereditary and appointive and partly elective; members of the congress (431 in number) are elected by universal manhood suffrage. The regency of Queen Maria Christina ended May 17, 1902, when King Alfonso XIII., on his coming of age, was enthroned. The Liberal ministry of Señor Sagasta was succeeded by the Conservative ministry of Señor Silvela December 6, 1902.

Army and Navy.—All able-bodied Spaniards over nineteen years of age are liable to military service. The peace strength of the regular army in 1901 was stated at 16,274 officers and 110,716 men. In the infantry there were 7319 officers and 45,581 men; cavalry, 1670 and 12,388; artillery, 1260 and 12,834. The military budget for 1902 was 154,506,716 pesetas.

The navy, exclusive of non-effective vessels, is as follows: 1 second-class battleship, 3 first-class armored cruisers, 1 first-class protected cruiser, 9 other cruisers, 20 first-class torpedo boats, 7 second and third-class torpedo boats, 60 gunboats, and 2 coast defense ships. The personnel comprises about 1000 officers, 14,000 sailors, and over 700 mechanicians and other employees; there are about 9000 marines. The naval budget for 1902 was 35,041,702 pesetas. In October, 1902, it was stated that a plan for naval expansion would be submitted to the Cortes. This programme included the construction of 10 battleships of 13,000 tons; 6 to 10 cruisers of 3000 tons, 6 torpedo-boat destroyers of 240 tons; 32 torpedo boats of 130 tons, and 40 of 70 tons; 20 gunboats of 300 tons; 2 training ships, and 3 sailing vessels for training purposes. The estimated cost of this construction is upwards of "20 to 24 millions sterling." It is clear that Spain's economic condi-

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tion does not warrant such an expenditure, even though it be distributed over a considerable number of years.

Finance.—The monetary standard is bimetallic—gold and silver; the unit of value is the peseta, the face value of which is 19.3 cents, but the actual value about 15 cents. The largest items of revenue are direct taxes and customs; by far the largest expenditure is for the public debt, next in importance being war, public works, etc., and pensions. For 1900 the ordinary revenue and expenditure were 994,818,665 pesetas and 906,063,503 pesetas respectively; 1901 (provisional), 957,-243,491 and 930,854,193 respectively. For 1902 the estimated revenue and expenditure in pesetas were 974,437,749 and 971,176,259 respectively, and for 1903, 951,178,227 and 948,661,898 respectively. On July 1, 1901, the public debt amounted to 9,651,503,304 pesetas. In June, 1902, an internal five-per-cent. loan of 338,400,000 pesetas were issued at 90.5.

Industries, Commerce, etc.—Agriculture and mining are the leading industries, while manufacturing is less important. The leading crops include wheat and other cereals, flax, hemp, and fruits, especially grapes. There are valuable mineral deposits, particularly copper, iron, silver, and mercury, and the mining industry is developing. For 1899 the imports and exports are stated at 954,156,701 pesetas and 768,207,934 pesetas respectively; for 1900, 862,396,600 and 723,867,883 respectively. The leading imports include machinery and iron and other metal wares, cotton and woolen textiles, and chemicals, etc. The principal exports in 1900 were: Foodstuffs, including wine, grain, and sugar, 254,735,684 pesetas; minerals, pottery, etc., 159,092,522; metals and metal wares, 88,898,633; animals and animal products, 64,846,347; wood and its manufactures, 53,378,864. Foreign commerce is carried on principally with France and Great Britain. The railways in operation in 1901 had an aggregate length of 13,391 kilometres (8321 miles).

HISTORY.

Politics and Legislation.—The political situation in the early part of 1902 was marked by a cabinet crisis which culminated in the resignation of the ministry on March 13. This ministry had been formed on March 6, 1901, under the premiership of Señor Sagasta, and had pledged itself to carry out certain reforms, including a contraction of the paper currency, a reduction of financial burdens, and especially the subjection to state supervision of the unauthorized religious associations. In pursuance of this pledge a decree drawn by Señor Gonzalez, minister of the interior, had been published on September 19, 1901, ordering all religious associations except those authorized by the Concordat under pain of dissolution to register within six months and declare their statutes, assets, incomes, etc. To the disappointment of the reform party it was announced before the expiration of six months that an agreement concerning the interpretation of the Concordat which authorized the congregations had been entered into with the papacy, as a result of which the decree of September 19 was materially impaired, if not nullified, that is, all congregations asking for authorization were to receive it. At the same time a postponement was granted to the congregations for their registration. This apparent retreat of Señor Sagasta induced Señor Gonzalez to withdraw from the cabinet on March 12. On the same day the finance minister, Señor Urzaiz resigned ostensibly on account of the opposition to his measure for the reconstruction of the Bank of Spain. These two breaks in the cabinet were followed by the resignation of the remaining members on the day following. Sagasta declined to form a coalition ministry as the queen regent wished, but on March 18 reconstructed the cabinet with Liberal members, one of the new appointees being Señor Canalejas, an extreme Liberal, as minister of agriculture, who was induced to take office only after the ministry had promised to undertake the reforms originally announced by the Liberal party. On account of the anti-clerical views of Canalejas it soon became apparent that he would not be supported by the other members of the cabinet on the associations question. A difference between him and his colleagues as to the necessity for an immediate convocation of the Cortes afforded an occasion for his resignation on May 27. He was replaced by Señor Inclan, vice-president of the chamber. The crisis thus terminated was characterized by Sagasta's opponents as a victory of the Holy See over the Spanish government. After the resignation of Canalejas a royal decree was issued upon the advice of Sagasta, suspending the sessions of the Cortes until October. Canalejas thereupon entered upon a propaganda among the people, speaking in many places against clericalism, proclaiming himself a democrat, and advocating, besides anti-clericalism, various political and social reforms, chief of which were decentralization of government, old-age pensions, compulsory life insurance, and employer's liability.

Early in November another cabinet crisis followed, and on the 10th the entire ministry resigned. The Cortes, which were suspended in May, had been reconvened,

and discussion upon the policy of the government had developed opposition from Sagasta's own party, which reproached him for not carrying out the programme he had announced upon taking office. Notwithstanding the opposition to Sagasta the king expressed confidence in him and persuaded him to undertake the reconstruction of the cabinet, which he accomplished on the 14th of November. After vainly endeavoring to form a ministry of concentration he was forced to be content with a "homogeneous" Liberal ministry, essentially the same as that which had resigned. On December 3, Señor Sagasta resigned and announced to the king that the step was irrevocable, as the opposition had treated him with distrust and discourtesy. On December 6 a new cabinet was formed by Señor Silvela, a Conservative, and three days later the Cortes were dissolved to await the spring elections. The new premier announced reforms in the fiscal service, local administration, education, and the army, including compulsory military service. An administrative measure of note was a drastic decree issued by the king on July 1 for the regulation of non-official instruction. The decree provided that all schools of whatever kind which were not state schools, whether founded or supported by corporations or private individuals, should be registered by the proper authorities and subjected to inspection and to certain regulations concerning sanitation, discipline, and qualifications of teachers. The law went into effect September 15, although a further delay of three months was allowed for compliance with its provisions. A statement of the minister of the interior on June 20 showed that there were 3115 religious communities in Spain of which 2611 had applied for and received authorization. A matter of prolonged debate in the Cortes was the question of financial reform. In order to improve the rate of exchange for gold, a bill was passed in February providing for the payment in gold of customs duties on certain articles. In July an arrangement between the treasury and the bank of Spain was concluded, by which all sums advanced to the government by the bank should bear interest at the rate of two per cent. This was to be followed by an increase of the metallic reserve and a reduction of the paper currency.

The Enthronement of the King.—Alfonso XIII. having attained his majority as prescribed by the constitution (16 years) was enthroned May 17, 1902, and the regency held by his mother was thereby terminated. Extensive preparations had been made for the enthronement festivities, and the favorable weather that prevailed at the time made the occasion a notable and brilliant one. At 2 P.M. May 17, the royal family, accompanied by a splendid procession, marched to the chamber of deputies, where in the presence of the senators and deputies the king took the oath to support the constitution. The queen signalized her retirement by a public letter to Señor Sagasta, expressing gratitude to the Spanish people for the proofs of affection and support which she had received from all classes. At the same time the king issued a spirited proclamation to the nation invoking a continuance of the support which had been accorded the queen regent. At night there were splendid illuminations in the cities of Spain, and on the 19th occurred a grand review of the troops at Madrid, 140,000 in number marching past the king. The occasion was marred by the discovery of an anarchist plot against the king and five men with dynamite cartridges in their possession were arrested by the police.

Foreign Relations.—Incidents in the foreign relations of Spain in the year 1902 were the conclusion of arbitration treaties with Argentina, Bolivia, Colombia, Guatemala, Mexico, Paraguay, Santo Domingo, and Uruguay; the conclusion of a treaty of amity, commerce, and navigation with the United States July 3; and the official recognition of the independence of the Republic of Cuba in June. Toward the end of the year rumors were current of an *entente* and possibly an approaching alliance with France, based on the report that France was to extend to the Spanish government aid in constructing a large fleet.

The Industrial Situation.—The industrial situation in the early part of the year was marked by strike riots in several localities, instigated chiefly by anarchists. In January the metal workers at Barcelona entered upon a strike on account of failure to secure favorable concessions from their employers. They were soon joined by other discontented workmen, which swelled the number to 80,000. Riots ensued, and practically all business in the city was suspended. On February 17 the city was declared to be in a state of siege, and martial law was proclaimed. By the end of the month quiet and order had been restored.

SPALDING, JOHN FRANKLIN, Protestant Episcopal bishop of Colorado, died March 9, 1902, at Denver. He was born August 25, 1828, in Belgrade, Me.; graduated at Bowdoin College in 1853, and at the General Theological Seminary in New York City in 1857. He was ordained deacon in Portland in 1857, and priest the following year in Bangor, Me. From 1862 to 1873 he was rector of St. Paul's in Erie, Pa., when he was elected bishop of Colorado, with jurisdiction in

Wyoming. Among other works he published *The Church and Its Apostolic Ministry* (1887); *The Threefold Ministry of the Church of Christ* (1889); and *Jesus Christ, the Proof of Christianity* (1890).

SPOONER, JOHN COIT, senator from Wisconsin, was the author of the isthmian canal bill, which passed both houses of Congress in June, 1902. He was born at Lawrenceburg, Ind., January 6, 1843; removed with his parents to Madison, Wis., in 1859, and graduated at the University of Wisconsin in 1864. In the Civil War he served as private in the Fortieth Wisconsin Infantry and later as captain in the Fiftieth Wisconsin Infantry, being brevetted major at the close of the war. He acted for some time as private and military secretary to Governor Lucius Fairchild, and in 1867 was admitted to the bar. He was assistant attorney-general of the State from 1868 to 1870, removing in the latter year to Hudson, Wis., where he practised law until 1884. During this period his only political office was that of a member of the Wisconsin assembly, 1872-74. He had become prominent, however, as a lawyer and campaign speaker, when, in 1885, he was elected as a Republican to the National Senate. His first term, after which he was succeeded by William F. Vilas in 1891, was uneventful. In 1892 he was defeated for governor, and in 1893 resumed legal practice in Madison. Upon the expiration of Senator Vilas's term, in 1897, Senator Spooner was the unanimous choice of his party, and on January 27, 1897, was formally elected by the State legislature. From the moment of his re-entering the Senate he took a leading part in legislation, and soon came to be recognized as one of the ablest debaters, most sagacious legislators, and hardest workers in the body. He has been a strong supporter of the last two administrations, and his utterance is looked upon as more nearly expressing the views of the administration than that of any other member. At the same time he is conservative and independent, opposed the ship sudsidy bill, favors reciprocity and a readjustment of the tariff, and has expressed himself as favorable to the withdrawal of the United States from the Philippines as soon as conditions will permit. See WISCONSIN (paragraph Politics).

SPORTS. See the articles on the various sports.

SPRIGG, Sir JOHN GORDON, premier of Cape Colony since June, 1900, attracted attention by his participation in the conference of colonial premiers in London in 1902, and by his unqualified opposition to the proposal for the temporary suspension of the constitution of Cape Colony. He was born in Ipswich, England, in 1830, and removed to the Cape of Good Hope in 1858. He was elected to the Cape parliament in 1869, soon drew public notice by his energy and ability, and has ever since been prominently identified with the political and commercial development of South Africa. He was premier from 1878 to 1881, from 1886 to 1890, and again in 1898. After the fall of the Schreiner ministry in 1900 he became premier for a fourth time, and his strong and statesmanlike control of affairs in the most trying crisis in the political history of the colony, when a great part of its population was at least tacitly in sympathy with a people at war with the mother country, justifies an estimate that ranks him high among the men who are building up the colonial republics of England in every part of the globe.

SQUIERS, HERBERT GOLDSMITH, who on May 20, 1902, took office as the first United States minister appointed to the newly instituted republic of Cuba, was born in Madoc, Canada, April 20, 1859, and was educated at the Canandaigua (N. Y.) Academy, the Maryland Agricultural College, and at the United States Artillery School. Entering the army as second lieutenant of the First Infantry in 1877, he served as such until 1880, when he was transferred to the Seventh Cavalry. He resigned in 1891, and on November 15, 1894, was made second secretary of the United States embassy in Berlin. In May, 1897, he retired from this post, and in the following January he became secretary of legation at Peking, where, during the Boxer uprising of 1900, he rendered distinguished service on the staff of Sir Claude MacDonald, the British minister to China.

STANFORD UNIVERSITY. See LELAND STANFORD, JUNIOR, UNIVERSITY.

STANLEY, DAVID SLOANE, an American soldier, died in Washington, D. C., March 13, 1902. He was born in Chester, Wayne County, O., June 1, 1828, and in 1852 graduated at the United States Military Academy. He served with distinction in the Civil War, and during the latter part of it was almost constantly in active service, and participated in the battle of Kenesaw Mountain, the assault at Ruff's station, the siege and occupation of Atlanta, the campaigns around Nashville, and the battle of Franklin; and for his gallantry in the latter engagement received the brevet of major-general in the regular army. He was made colonel of the Twenty-second Infantry in July, 1866, and had a wide range of duty at many western forts in controlling Indian outbreaks. From 1883-84 he commanded the district of New Mexico, and from 1884 until his retirement was the successor of

General Rosecrans as commander of the department of Texas. He was president of the Society of the Army of the Cumberland and commander for four years of the National Soldiers' Home in Washington.

STANTON, ELIZABETH CADY, a promoter of the women's rights movement, died October 26, 1902, in New York City. She was born November 12, 1815, at Johnstown, N. Y. At an early age she became imbued with the idea that women were subjected to great disadvantages before the law, and determined to devote herself to the betterment of their condition. When the National American Women's Suffrage Association was formed at Seneca Falls, N. Y., in 1848, she became its first president, and in the same year prevailed upon the State legislature to pass an act giving women the right to retain the title to their own property after marriage. In 1868 she was a candidate for Congress. She was the president of various associations for the promotion of women's rights, and during her whole career was an energetic writer and lecturer. In the publication of *The Women's Bible* she collaborated with several others, in the belief that the King James version degrades women. Her autobiography, *Eighty Years and More,* appeared in 1895.

STARS. For the statistics of stars, stellar parallax, and the new star in Perseus, see ASTRONOMICAL PROGRESS.

STATE BANKS. The statistics of State banks, given on the following page, are taken from reports made by the comptroller of the currency approximating to June 30, 1902. In a few places reports were unofficial, and in some others they included both State and private banks.

STEEL. See IRON AND STEEL and UNITED STATES STEEL CORPORATION.

STEPHENS, WILLIAM RICHARD WOOD, dean of Winchester, died in Winchester, England, December 22, 1902. He was born in Gloucestershire, October 5, 1839, and after private preparation entered Balliol College, Oxford, and graduated with honors in 1862. Ordained in 1864, his first charge was at Staines, where he was made assistant curate in the same year. In 1870 he became vicar of Mid-Lavant, Sussex, remaining there for three years, and he subsequently served the Church in many positions, as lecturer at the Chichester Theological College (1872-75), prebendary of Wittering and theological lecturer at the Chichester Cathedral (1875-94), and rector of Woolbeding, Sussex (1876-94). In 1894 he was nominated to the deanery of Winchester. With the Rev. W. Hunt he edited the *History of the Church of England,* not yet completed, and published *Life and Times of St. John Chrysostom* (1872); *Memorials of the South Saxon See* (1876); *Christianity and Islam* (1877); *Life and Letters of W. F. Hook, D. D.* (1878); *Hildebrand and His Times* (1888); *Helps to the Study of the Prayer-Book* (1891); *Life and Letters of E. A. Freeman* (1895).

STEVENS, BENJAMIN FRANKLIN, an American bibliographer, died in London, England, March 5, 1902. He was born at Barnet, Caledonia County, Vt., February 19, 1833; studied at the University of Vermont, and in 1860 went to London, where he was at first active as a bookseller, and later became manager of the Chiswick Press, United States despatch agent, and purchasing agent for American libraries. For more than thirty years he directed a staff of assistants in the compilation of various manuscripts pertaining to the history of colonial America. Among his important publications, the result of the examination of European archives, is *Fac-similes of Manuscripts Relating to America* (25 vols., 1889-98; 200 copies printed). Other works prepared by him are: *The Campaign in Virginia in 1781* (2 vols., 1888); *General Sir William Howe's Orderly Book,* and Columbus's *Book of Privileges* (with a translation into English).

STOCKTON, FRANCIS RICHARD, an American editor and author, widely known for his unique short-stories, died at Washington, D. C., April 20, 1902. Born at Philadelphia, Pa., April 5, 1834, he was educated at the Philadelphia Central High School, where he graduated in 1852, and began the study of medicine, but turned to wood-engraving, and for several years practised that art. At the same time he contributed to various periodicals prose, verse, and pen-sketches. In 1861 he made further contribution to literature in a pamphlet, *The Northern Voice,* which elaborated a compromise plan to avert the impending struggle. He became a member of the Philadelphia *Morning Post* staff in 1872, and in the same year published in *Scribner's Monthly* (later the *Century Magazine*) the short-story *Stephen Skarridge's Christmas,* which obtained for him the encouragement of Dr. J. G. Holland, then the editor-in-chief. In the same year he established himself in New York City as news-editor of the weekly *Hearth and Home,* of whose humorous department, "That Reminds Me," he also had charge, and for which he wrote numerous short-stories. After a period as assistant editor of *Scribner's,* he was assistant editor of *St. Nicholas* from 1873 until his resignation in 1882. It was his *Rudder Grange,* a humorous story in fresh and distinctive vein, printed serially in *Scribner's,* and in 1879 in book-form, that first claimed a wider notice. From this time

STATE BANKS.

STATES AND TERRITORIES.	Number of Banks.		Total Resources.		Deposits.	
	1901	1902	1901	1902	1901	1902
NEW ENGLAND STATES.						
New Hampshire	10	10	$2,081,649	$2,182,282	$972,097	$1,418,656
Rhode Island	4	3	1,394,536	1,334,525	708,244	735,705
Connecticut	8	8	11,180,075	10,747,200	7,840,220	7,437,131
Total	22	21	$14,956,260	$14,264,007	$9,520,561	$4,091,492
EASTERN STATES.						
New York	198	193	$468,488,375	$363,038,711	$350,725,580	$253,411,997
New Jersey	20	18	12,628,514	12,611,460	8,633,674	8,950,284
Pennsylvania	103	105	110,940,890	126,381,298	91,202,652	100,164,359
Delaware	3	2	2,515,090	1,486,167	1,407,086	933,006
Maryland	28	31	9,550,674	11,010,690	7,262,801	8,378,861
Total	352	349	$604,123,525	$514,537,326	$468,341,193	$371,839,507
SOUTHERN STATES.						
Virginia	111	120	$37,276,018	$39,778,040	$25,491,027	$27,478,642
West Virginia	101	111	33,945,366	39,703,549	26,225,147	30,367,110
North Carolina	79	81	12,489,357	14,457,908	7,707,702	9,403,367
South Carolina	31	46	5,195,956	14,411,489	2,433,760	9,828,115
Georgia	169	177	44,118,207	45,936,156	23,585,161	26,186,778
Florida	20	25	4,582,545	1,792,007	3,639,395	5,271,408
Alabama	22	22	4,383,944	1,048,912	2,568,673	3,881,172
Mississippi	117	120	23,984,412	26,544,957	13,677,775	16,297,325
Louisiana	66	80	26,768,608	32,333,303	18,240,541	23,980,953
Arkansas	44	61	8,202,126	10,930,108	5,564,287	7,674,685
Kentucky	237	229	52,065,702	49,533,943	35,636,783	32,045,981
Tennessee	132	153	23,936,041	32,983,604	15,983,268	24,714,045
Total	1,129	1,234	$276,998,282	$319,456,976	$181,453,519	$217,129,589
MIDDLE STATES.						
Ohio	198	225	$146,663,551	$179,543,941	$119,744,444	$142,913,767
Indiana	106	110	25,644,273	29,754,851	19,652,018	23,316,493
Illinois	161	190	256,897,816	311,992,102	107,437,893	232,708,525
Michigan	207	223	145,036,939	159,076,855	120,201,802	132,517,710
Wisconsin	151	173	60,345,626	68,925,772	51,051,755	58,963,394
Minnesota	108	238	45,057,990	54,753,148	29,787,518	41,303,240
Iowa	218	230	53,893,613	60,961,124	41,153,346	47,988,851
Missouri	588	589	129,861,180	139,629,966	96,674,440	104,069,917
Total	1,837	1,978	$863,400,988	$1,004,637,759	$675,703,297	$783,781,897
WESTERN STATES.						
North Dakota	133	163	$7,728,224	$11,933,857	$5,271,435	$9,426,174
South Dakota	159	229	14,936,203	21,655,346	11,303,286	37,089,882
Nebraska	421	458	40,066,125	45,484,228	30,564,634	35,069,528
Kansas	410	413	47,687,865	45,287,386	37,097,402	34,202,940
Montana	18	21	13,333,791	15,254,232	10,582,377	11,891,692
Wyoming	10	11	944,181	1,517,282	681,465	1,021,061
Colorado	31	35	11,126,289	8,720,651	9,395,877	7,322,745
New Mexico	10	12	1,744,724	2,283,172	1,353,358	1,783,767
Oklahoma	113	152	7,437,181	9,456,098	6,039,297	7,735,633
Total	1,341	1,494	$145,004,583	$161,502,252	$112,289,137	$125,243,442
PACIFIC STATES.						
Washington	31	40	$11,789,610	$16,031,210	$9,859,442	$13,232,342
Oregon	21	18	3,885,446	6,424,730	2,809,643	5,093,963
California	180	187	163,989,951	185,080,831	98,848,187	117,794,914
Idaho	10	7	1,162,197	919,382	804,438	640,564
Utah	28	29	38,927,736	41,793,699	25,139,338	26,513,861
Nevada	3	2	2,255,697	2,174,794	1,619,094	1,579,630
Arizona	16	16	3,918,806	4,641,654	3,133,499	3,856,986
Total	289	299	$225,929,443	$257,048,300	$142,313,638	$158,712,260
ISLANDS.						
Hawaii	2	3	$2,946,078	$2,548,417	$1,703,551	$1,274,805
Porto Rico	3	8	3,364,042	5,359,189	1,753,782	2,489,449
Philippines	7	11	24,553,079	29,914,489	17,523,592	18,122,867
Total Islands	12	22	$30,863,199	$37,822,095	$20,980,925	$21,887,120
Total United States	4,983	5,397	$2,160,976,280	$2,309,358,715	$1,610,502,246	$1,698,185,287

until Stockton's death, volume after volume of characteristic fiction appeared in quick succession. Among them—to mention but a few of the familiar series—were: *A Jolly Fellowship* (1880); *The Lady or the Tiger?* (1884); *The Casting Away of Mrs. Lecks and Mrs. Aleshine* (1886); *The Christmas Wreck* (1886); *The Bee-Man of Orn* (1887); *The Dusantes* (1888); *The Great War Syndicate* (1889); *The Merry Chanter* (1890); *The Rudder Grangers Abroad* (1891); *The Adventures of Captain Horn* (1895); *The Great Stone of Sardis* (1897); and *A Bicycle of Cathay* (1901). The posthumous *John Gayther's Garden, and the Stories Told Therein* (1902) maintains the same excellent standard. *Buccaneers and Pirates of Our Coast* (1898) contains popular sketches regarding a phase of history in which he was deeply interested and made extensive researches. He also published in 1901 the novel *Kate Bonnet*. His reputation rests chiefly on his whimsical short-stories, including such famous titles as *The Lady or the Tiger? The Transferred Ghost, The Spectral Mortgage*, and *A Tale of Negative Gravity*. In all there is recurrent the peculiar Stocktonian manner, a law unto itself, narrating with preternatural reasonableness the absurdly illogical and the patently impossible.

STODDARD, Elizabeth Drew [Barstow], an American novelist and poet, died August 1, 1902, in New York City. She was born at Mattapoisett, Mass., May 6, 1823, and her education was acquired at a seminary for young ladies. At the age of twenty-eight she married Richard Henry Stoddard, the poet and littérateur, lived for a time in Boston, then removed with him to New York City, where the remainder of her life was spent. She was the mother of the late Lorimer Stoddard, the playwright. In 1860 she contributed to the *Atlantic Monthly, My Own Story*, and followed the writing of this short story by three novels drawn from the scenes of her early home, *The Morgesons* (1862); *Two Men* (1865); and *Temple House* (1867). They were entirely different from any novels of the time, but, though immature in structural qualities, showed the author as worthy a pioneer as the Brontë sisters in England, in the temperamental treatment of life in fiction. Standing apart from the literature of the time, which was largely polemical, the novels had but a moderate success, yet they have always been valued by a small circle of admirers, and have twice been reprinted, the last time in 1901. A few short stories and occasional poems, the latter gathered into a volume in 1896, are all that Mrs. Stoddard attempted after her last novel.

STOKES, Sir John, a British soldier, lieutenant-general in the Royal Engineers and senior vice-president of the Suez Canal Company, died November 17, 1902, at Ewell, Surrey. He was born in Cobham, Kent, in 1825, attended the Royal Military Academy, and entered the Royal Engineers in 1843. He took part in the Kaffir wars, was intrusted in 1855 with the formation of the engineer corps for the Anglo-Turkish contingent, and was present at the fall of Sebastopol. For fifteen years he served on the European commission, created by the Treaty of Paris in 1856 to open the mouth of the Danube, which effected the restoration of order and opened the river to navigation for large ships. In 1873 he was a member of the international commission on tonnage and Suez Canal dues at Constantinople. The following year he returned to England to take command of the school of military engineering at Chatham. In 1876 he had the distinction of concluding the convention with M. de Lesseps, whereby the recommendations of the Constantinople commission of three years before were finally accepted by the Suez Canal Company. In 1881 he received a war office appointment as deputy adjutant-general of engineers. He was retired from the army in 1887, but he continued his connection with the Suez Canal Company up to the time of his death. He was created C.B. in 1871, and K.C.B. in 1877.

ST. PIERRE, capital of Martinique, destroyed by eruption of Mont Pelée in May, 1902. See Martinique.

ST. PIERRE and MIQUELON, the largest of two groups of small islands lying near the south coast of Newfoundland, and constituting a French dependency. The St. Pierre group, which is only 10 square miles in area, has about nine-tenths of the population. The area of the Miquelon group is 83 square miles. The total resident population is only about 6500. The dependency has little importance except as the headquarters of the French codfishing industry on the Grand Banks. In 1900 the imports were valued at 9,326,037 francs and the exports 13,467,453 francs; of the latter 12,253,997 francs represented codfish (including cod-liver oil). On November 1, 1902, the town of St. Pierre was devastated by fire, the estimated property loss being about $500,000.

STRAITS SETTLEMENTS, a British crown colony on the Straits of Malacca, comprise Malacca and Wellesley at the southern extremity of the Malay Peninsula, the adjacent islands of Singapore, Penang, and the Dingdings, and the Keeling group and Christmas Island in the Indian Ocean. The aggregate estimated area is 1542 square miles and the population (1901) 572,249, of whom 228,555 were in Singapore, the seat of government. The colony is administered by a governor (Sir Frank

Athelstane Swettenham, since 1901), assisted by executive and legislative councils. In 1900 revenue and expenditure amounted to 5,386,557 dollars (Mexican) and 6,030,744 dollars respectively; in 1901, 7,041,686 and 7,315,001 respectively. Singapore is one of the most important shipping centres in the world and three-fifths of the whole trade of the colony pass through its port. The chief products of the colony are tin, gutta-percha, gambier, pepper, rubber, horns, hides, sugar, sago, tapioca, spices, dye-stuffs, coffee, and gums. The trade returns for 1900 showed imports of 314,089,860 dollars and exports of 262,617,345 dollars; of the latter amount 60,767,602 dollars represented tin, 19,135,903 dollars gums, and 14,526,785 dollars spices. The aggregate trade of all the settlements in 1901 amounted to 599,274,014 dollars, of which tin exports represented the sum of 62,323,051 dollars. The clearances of 8722 foreign vessels during 1900 represented a tonnage of 7,231,220, and of 17,086 native craft, 724,189. Railways, of which 23 miles were open for traffic in 1901, are being rapidly extended and several lines of electric tramways are projected.

STRAUS, Oscar Solomon, an American diplomat, was appointed January 14, 1902, a member of the Permanent Court of Arbitration at The Hague, to fill the vacancy caused by the death of ex-President Harrison in 1901. Mr. Straus was born December 23, 1850, at Otterberg, Rhenish Bavaria, and came to the United States in 1854. He graduated from Columbia University in 1871, and from the Columbia Law School in 1873. He has been a lifelong Democrat, and in 1887 was appointed minister to Turkey by President Cleveland, and distinguished himself to such an extent that he was appointed by President McKinley to the same office in 1898. Mr. Straus is also a member of the industrial commission of the National Civic Federation, which in 1902 made vain efforts to prevent the anthracite coal strike. He has published *The Origin of the Republican Form of Government in the United States* (1886); *Roger Williams, the Pioneer of Religious Liberty* (1894); *The Development of Religious Liberty in the United States* (1896); and *Reform in the Consular Service* (1897). In addition to the activities already mentioned, he is prominent in Jewish reform movements and is a leader in the cause of social betterment of every character. He holds the degree of L.H.D. from Brown University and LL.D. from Washington and Lee University and the University of Pennsylvania.

STREETS. See Pavements, Streets and Roads.

STRIKES. The sixteenth annual report of the United States commissioner of labor gives statistics of strikes and lockouts from 1894 to 1900.

Strikes.

Year.	Number of Strikes.	Numbers of Employees Thrown Out of Employment by Strikes, the Results of Which Were—			Total Number of Employees Thrown Out of Employment.
		In Favor of Workers.	In Favor of Employers.	Compromised.	
1894	1,349	117,500	405,391	137,534	660,425
1895	1,215	156,388	192,286	43,729	392,403
1896	1,026	99,823	106,839	34,508	241,170
1897	1,078	158,858	97,221	152,312	408,391
1898	1,056	108,669	117,321	23,012	249,002
1899	1,797	227,202	130,214	59,655	417,072
1900	1,779	145,218	163,477	196,307	505,066

Lockouts.

Year.	Number of Lockouts.	Number of Employees Thrown Out of Employment.	Number of Establishments in Which Results of Lockouts Were—			Total Number of Establishments in Which Lockouts Took Place.
			In Favor of Employers.	In favor of Employees.	Compromised.	
1894	55	29,619	99	755	21	875
1895	40	14,785	49	320	1	370
1896	40	7,668	41	9	1	51
1897	32	7,763	104	61	6	171
1898	42	14,217	104	59	1	164
1899	41	14,817	58	262	2	323
1900	60	62,653	2,151	123	7	2,281

The aggregate number of laborers involved in trade disputes in the United States in the twenty years, 1881 to 1900, was 6,610,001. Five States, Illinois, Massachusetts, New York, Ohio, and Pennsylvania, containing about 45 per cent. of all the manufacturing establishments and 55.2 per cent. of the capital invested in these industries, had 74.8 per cent. of the strikes and 84.8 per cent. of the lockouts. Mining, including gas and coke-making, was most disturbed by strikes and lockouts, nearly

one-third of the strikers belonging to that trade. The clothing trade ranked next, and then the building trades. Mining also took first place in the severity of the struggles, the average number of days' duration per strike being 48.9, as against 32.8 in the building trades. In the case of strikes, 46.7 per cent. arose from a demand for increased wages; with lockouts, 46 per cent. were caused by refusal to recognize the union. Taking the average of twenty years (1881-1900) the results of strikes and lockouts were as follows:

	Strikes (Percentage of Laborers Affected).	Lockouts (Percentage of Establishments Involved).
Wholly favorable to employees.	35.0	42.3
Wholly favorable to employers..	48.2	50.1
Compromised.....	16.7	6.2

No reliable figures for 1901 and 1902 have been prepared. The mere number of strikes is of no significance; the number of men affected and the length of the strike are the important factors. On this basis there can be no doubt that 1902 has been the most disastrous strike year, at least since 1893. The great strike in the anthracite coal fields was in itself sufficient to make it a record-breaking year.

The Anthracite Coal Strike.—The fundamental factors in the anthracite situation were and are: (1) Monopolization of a prime necessity; (2) gross overcapitalization of resources; (3) redundancy of labor. Given these three elements, all things are possible in the way of industrial upheaval and public inconvenience. Other subsidiary causes operated to aggravate and complicate the situation in the anthracite regions, as, for example, the character of the population, the prevalence of the "truck system," and the peculiar methods of bookkeeping employed by the operating companies. The monopolization of the anthracite coal mining industry is practically complete. Though there are said to be about seventy-four different operators in the field, yet they must ship over the coal roads, and so are at the mercy of the railroad combination at the head of which is J. Pierpont Morgan. The following scheme gives the financial connections of the roads tapping the anthracite coal regions.

"Coal Trust" roads, so called. Roads apparently acting together in the coal traffic under the general advice of J. P. Morgan & Co., and bound together by financial ties of widely varying strength. The predominant holdings are by Morgan, Pennsylvania, and Vanderbilt interests.

- *Pennsylvania* R. R. —Penn. control.
- *Delaware, Lackawanna & Western* R. R. —Vanderbilt control.
- *Erie* R. R. —Morgan control, considerable Vanderbilt interests.
- *Lehigh Valley* R. R. —Morgan control. Stock largely distributed among coal-carrying roads.
  - *Philadelphia & Reading* R. R. —Morgan control. Sold jointly to Baltimore & Ohio R. R., representing Pennsylvania, and to the Lake Shore R. R., representing Vanderbilt interests.
    - *Central R. R. of New Jersey.* —Morgan control. Sold to the Reading in January, 1901.
  - *New York, Susquehanna & Western* R. R. Bought by Erie and later mortgaged to Morgan syndicate.
  - *Erie & Wyoming Valley* R. R. Bought by Erie as part of Pennsylvania Coal Co. Mortgaged to Morgan syndicate.

Independent or partly independent roads.

- *New York, Ontario & Western* R. R.
- *Delaware & Hudson* R. R. —"Usually credited with Vanderbilt affiliation." —Industrial Commission, 1902.
- *Delaware, Susquehanna & Schuylkill* R. R. Owned by Coxe Bros. & Co., independent operators.

Their position "is one of *relative* independence."—Editor *Railway World.*

The laws of Pennsylvania forbid a common carrier to own coal lands or to engage in the mining of coal. To get around this difficulty the roads have organized subsidiary companies to hold their coal lands and carry on actual mining operations under a different corporate name but under the identical management. This arrangement has resulted in a wonderful system of accounting whereby the profits, of right accruing to the coal mining departments, are paid over to the carrying departments in the shape of exorbitant freights. Several of the roads are grossly overcapitalized, as will be seen from the table given below.

The oversupply of labor is attested by low wages, long hours, bad conditions of housing, high cost of living, long periods of idleness, and the general squalor of the mining population. Daily or monthly wage rates are useless for comparison, because the mines are never operated more than 200 days in the year, nearly always much less, so that while wages appear good, the yearly earnings are very small. Such conditions are fruitful of discontent, and the miners struck for an advance of 10 per cent. in 1900, which was thought to have been granted for political reasons rather than as a concession to the miners' union. Neither party was satisfied, and though the agreement was renewed till April, 1902, both awaited its expiration with the determination of forcing the other to yield concessions.

THE ANTHRACITE COAL STRIKE—(Upper left) John Mitchell. *Photo by Marceau.* (Upper right) George F. Baer. *Photo by Gutekunst.* (Lower) The Strike Commission. *Courtesy, Collier's Weekly*

Railroads.	Capitalization of the coal roads per mile operated.		Stock quotations for the year 1901.		Dividends paid by the roads for a ten year period.	Pool apportionment of the coal traffic in 1896, and proportion of the coal carried by each road in 1900–1901.		
	Stocks	Bonds	Low	High	1892–1901	1896	1900	1901
Central of New Jersey	$40,279	$78,112	145¾	196¾	regular about 5	11.70	11.77	11.5
Delaware & Hudson	52,283	12,879	105	185½	regular 5 or 7	9.60	8.81	9.3
Delaware, Lackawanna & Western	27,666	3,239	188¼	258	regular at 7	13.35	13.33	14.1
Delaware, Susquehanna & Schuylkill	31,250	11,479	.....	.....	irregular, latterly 4	3.50	3.48	3.0
Erie*	69,018	68,507	24½	45½	none	11.20	11.45	10.9
Lehigh Valley	17,934	52,459	.....	.....	none since 1893	15.65	15.32	15.5
New York, Ontario & Western	120,829	47,010	24	40½	none	3.10	3.68	4.7
Pennsylvania†	54,717	26,449	137	161½	regular 5, latterly 6	11.40	11.46	10.5
Reading Company‡	96,210	101,463	24½	58	none	20.50	20.70	20.5

*The financial figures include only those for the New York, Lake Erie & Western; those for the coal traffic include the Erie & Wyoming Valley, and the New York, Susquehanna & Western, absorbed by the Erie.

†Only the Pennsylvania lines east of Pittsburg are included.

‡The Reading Company proper, for which the figures are here given, is primarily a mining and land owning company; it owns, however, the Philadelphia & Reading Railroad, and the finances of the two are inextricably intertwined.

In April, 1902, the disaffected miners formulated a demand for an eight-hour day, 60 cents a ton (2240 pounds) for mining coal, and recognition of the miners' union, all of which were promptly refused by the companies. The National Civie Federation then attempted to effect a settlement, and did succeed in bringing about a conference, which, however, merely served to widen the breach. Officers of the United Mine Workers met at Scranton, Pa., May 7, and President John Mitchell issued the union ultimatum, which was rejected with emphasis by the operators next day. Mr. J. P. Morgan had sailed for Europe a short time before while the first trouble was brewing. Senator Hanna, as chairman of the industrial committee of the National Civic Federation, called upon him to use his influence to bring about an adjustment, but Mr. Morgan declined to intervene, and laid the whole responsibility upon the operators. On May 9 President Mitchell ordered a temporary strike, pending the action of the convention of union delegates representing the disaffected districts. By May 12, 145,000 men were idle, and not a pound of coal was mined in the anthracite region. Senator Hanna made a last attempt to bring about a settlement, asking for a truce of sixty days in order that the winter's supply of coal might be mined, and time be allowed for a permanent adjustment, but his good offices were refused by both sides. On May 14 the convention of the United Mine Workers met at Shamokin, Pa., and the next day decided by a vote of 456 to 344 to continue the temporary strike. This is the official beginning of the strike in the union calendar, though work had been interrupted since May 10, and practically stopped on May 12. President Mitchell directed the strike from his headquarters at Wilkesbarre, Pa. On May 20 the coal road presidents met in New York City and determined to grant no concessions whatever. The executive committee of the union met the following day and decided to allow the pumpmen to work in order to keep the mines clear of water until June 2. At the same meeting plans were made for calling a convention representing all United Mine Workers' unions to consider the question of a general strike in the bituminous mines for the purpose of forcing the anthracite "coal barons" to terms. The operators refused to yield even when threatened with the flooding of the mines, and the annihilation of industry by the suspension of practically all coal mining in the country. When June 2 came, 80 per cent. of the pumpmen went out, and the water began to flood the mines. In the meantime the company stores had refused to give credit to miners, and hunger and suffering began to be felt among the poorer families. Thousands of miners, mostly the young unmarried Americans, left the region, thus aiding somewhat in relieving the permanent condition of congestion which had been a fruitful cause of all the labor troubles in the anthracite mines. President Roosevelt at this point attempted to bring about a settlement by arbitration, but the operators had "nothing to arbitrate." After consultation with Senator Hanna and Commissioner of Labor Wright, President Roosevelt deputed the latter to make an investigation and report upon the conditions in the strike area. Although Commissioner Wright did not have access to as much information as could be desired, yet his report, made in June, presented some aspects not well understood before and enabled President Roosevelt to deal more intelligently with the problem in his subsequent conferences with the "coal barons."

It now became evident that the struggle was a fight to the death, and, as usual

the strikers resorted to violence to frighten away "scabs" and to inflict damage upon the property of the companies. By June 4, 5000 special police were on duty in the coal fields, but as usual in such emergencies the police merely furnished a further incentive and objective point for more violence. When new men came into the mines, it was impossible to prevent outbreaks. The first bloodshed occurred June 7 when a tank boss was shot and killed by strikers at Keystone, W. Va. The first serious rioting occurred on July 30 at Shenandoah, Pa., when several policemen and more than forty strikers were killed or wounded. Governor Stone immediately sent two regiments of militia to the scene and order was restored. Violence became more frequent as the strike continued. Dwellings, bridges, and even trains were dynamited, and collieries were attacked with intent to destroy.

At first the cause of the miners was regarded with disfavor by the public generally, and if the operators had shown more capacity for candid dealing and regard for public interests they would have won an easy victory. It has been said in explanation of the persistent offers to arbitrate on the part of Mr. Mitchell, and the persistent and aggressive refusal on the part of the operators, that the miners had everything to gain and nothing to lose by arbitration, while the operators had everything to lose and nothing to gain. This is far from the truth, for an adverse decision by an arbitration tribunal would have meant practically the annihilation of the miners' union.

On June 11 the operators published the correspondence between themselves and Mr. Mitchell with reference to the miners' demands. Among other things George F. Baer, president of the Reading road, declared that the efficiency of miners had decreased 1,000,000 tons because the contract miners had worked only 4½ to 6 hours a day. The number of tons per man had decreased 11 to 17 per cent., or about 12½ per cent. on an average. Each one of the coal road presidents declared that to raise wages was utterly impossible, and to arbitrate would be to admit the public into the management of their business.

In a statement issued June 22, President Mitchell reviewed the situation and stated the demands of the miners. After stating that every possible means had been used to avoid the strike, he said that the average annual earnings of coal miners were less than those of any other class of workmen in the United States, notwithstanding that their work is the most hazardous. They are employed never exceeding 200 days in one year, and receive on an average $1.42 for ten hours' work, or considerably less than $300 a year. In regard to the operators' statement that the efficiency of miners had declined during 1901, Mr. Mitchell quoted the figures of the United States Geological Survey to show that the average time worked each year from 1890 to 1900 was 186 days and the production of coal per employee was 363.58 tons a year, or 2.16 tons a day; for 1901 the mines were open 194¼ days, and the amount produced was 475.43 tons a year, or 2.36 tons a day for each employee. Mr. Mitchell, however, did not take into account the extraction of coal by the washeries. It is probable that the amount of coal produced by contract miners did decline. In answer to the statement of President Olyphant, of the Delaware and Hudson Company, that the cost of mining had increased 13 cents for 1901, Mr. Mitchell quoted the official figures showing that during this same year the price of coal had advanced 39 cents a ton.

The convention of the United Mine Workers met at Indianapolis July 16. It was generally understood that it would vote as President Mitchell advised. He advised against a strike in the bituminous areas, urging the necessity for the miners to keep their contracts with the operators, and pointing out the appalling results to industry of a discontinuance of work in the bituminous mines. On the 19th of July the convention voted to stand by their agreements as President Mitchell advised. At the same session it was decided to support the anthracite strikers with funds, and orders were issued calling for assessments from coal miners at work everywhere. See ALABAMA.

On October 3 President Roosevelt called the presidents of the coal roads and Mr. Mitchell to meet him in Washington. At that time Mr. Mitchell proposed that the miners begin work at once on the promise that an arbitration commission be appointed by President Roosevelt to adjudicate all differences. This proposition the operators unanimously rejected. All confidently asserted that the only obstacle in the way of mining coal was lack of protection to the non-union miners, and demanded that President Roosevelt call out the federal troops to put down the strike as an interference with interstate commerce. President Baer asserted that 15,000 or 20,000 men were at work in the mines and that they were "abused, assaulted, injured, and maltreated by the United Mine Workers." After declaring that the operators were ready and able to mine coal if proper protection were afforded them, President Baer continued: "The government is a contemptible failure if it can only protect the lives and property and secure the comfort of the people by compromising with the violators of law and

the instigators of violence and crime. Just now it is more important to teach ignorant men dwelling among us, misled and used as tools by citizens of other States, that at whatever cost and inconvenience to the public, Pennsylvania will use the whole power of government to protect not only the man who wants to work, but his wife and children while he is at work, and to punish every man who by instigation or by overt acts attempts to deprive any man of his liberty to work. Under these conditions we decline to accept Mr. Mitchell's considerate offer to let us work on terms he names." The others followed out the same line. Mr. W. H. Truesdale went a step further and demanded that the miners' union be proceeded against in the courts as an organization in restraint of trade. Governor Stone of Pennsylvania ordered out the rest of the State national guard, but the protection of the 10,000 militia and 600 special police could not induce outside laborers to come in, while the men of the region stood together as a unit and refused to return to work.

On October 10 Senators Platt, Quay and Penrose and Governor Odell conferred with Mr. Baer and Mr. Thomas to propose a plan of conciliation. In refusing this offer, Mr. Baer said: "We will not accept political advice or allow the interference of politicians in this, our affair." Thereupon Governor Odell replied: "I want you and all the other operators to understand that I am the governor of New York, the chosen representative of 7,000,000 people, and I am here in this matter solely in that capacity and to relieve if possible an intolerable situation. And what is more, I intend to use every power at my command to do it." The governor continued his answer in the form of proceedings by the attorney-general of the State to ascertain if the coal trust was in violation of the anti-trust laws of New York.

On October 13 President Roosevelt had a conference with Mr. J. P. Morgan at which the latter proposed to refer the matter to a commission of five members consisting of (1) an officer of the engineer corps of the army or navy; (2) an expert mining engineer, with experience in mining coal and other minerals, but not connected in any way with coal mining; (3) a judge of the United States Court for the eastern district of Pennsylvania; (4) a man acquainted with the business of mining and selling coal as an operator; and (5) a prominent sociologist. The labor leaders objected to this commission on the ground that no representation was given to labor. President Roosevelt induced the operators to accept a sixth member, naming Bishop Spaulding as the man, and succeeded in overcoming Mr. Mitchell's objections by appointing as "a prominent sociologist," Mr. Edward E. Clark, of Cedar Rapids, Ia., president of the Association of Railroad Conductors. The other members appointed were Gen. John M. Wilson, engineer of the United States army; Mr. Thomas H. Watkins, of Scranton, coal operator; Judge George Gray, of Delaware; and Mr. Edward W. Parker, of New York, mining expert. The evidence taken by the commission up to the end of 1902, brought out many pathetic and distressing circumstances. The evidence showed that oftentimes severe want prevailed in the mining regions, while the conduct of the operators was often marked by extreme cruelty. Abuses were shown upon both sides. It was proven that little girls worked twelve hours in the silk mills in the mining region for 66 cents. The following day the operators introduced their pay rolls showing that the fathers of two of these girls received for the year 1901, $1400 and $1681 respectively, and that after deducting one-third for their laborers they still had left $933 and $1121 respectively. This evidence produced strong feeling against the greed of the miners; but later the New York *Evening Post* found these men and put them on the stand. It was proven by them that the money credited to them on the company's statement was not their earnings alone, but was in each case the earnings of a double gang which, during part of the year, numbered six men. The general superintendent of the company was put on the stand, and acknowledged that such double gangs were sometimes entered on their books as single gangs, and that he had given the earnings of these men to the commission, and the press without any intimation that they were the earnings of a group. Judge Gray, chairman, gravely warned the representatives of the company that this disclosure called in question all their statements of earnings. On the other hand it was shown that the union not only practiced intimidation and boycotting against non-union men during the strike, but had been guilty of the most outrageous attacks upon non-union operatives. At the close of the year the evidence as to conditions in the mines was practically all in, and it seemed inevitable that the miners would win some at least of the concessions that they demanded.

Other Strikes.—Numerous lesser strikes occurred all over the country, some of them involving large numbers of men and great capital. In May and June the packing-house teamsters of Chicago carried on a strike for an advance in wages. On June 5 they returned to work, their demands being satisfied. On July 7 9000 freight handlers employed in railway warehouses in Chicago struck for an increase

in wages, extra pay for overtime, and the recognition of their union. Truckmen and icemen struck in sympathy on the 14th. For two days all traffic was blocked, not even perishable freight being handled. On the 16th the strikers went back, having secured an advance in wages, but no recognition for the union. It is estimated that the strike cost the city of Chicago $12,000,000, owing to the loss of fruit and other perishable articles. Many annoying strikes in the building trades occurred not only in Chicago, but in all the large cities where these trades are thoroughly organized. The carpenters' national organization reported more than 500 strikes during 1902, every one of which was successful. The building trades are the most completely organized of any branch of labor and have the public at their mercy. No contractor dares to employ non-union labor in construction. Even the hod carriers can dictate their own terms in some cities. Contractors are compelled to exercise the greatest care to avoid building materials made or handled by non-union labor. Many costly and annoying strikes have occurred on the most trivial pretexts, as the fact that a non-union teamster was handling brick, or that the lath being used was made by a non-union mill, or that the floor joists were handled by "scab" workmen. When it has been discovered that material contaminated by the touch of non-union labor has been used in a building, all further progress is stopped until the material is ripped out and destroyed or carted away (by union labor) even at the peril of destroying the whole structure. As good an illustration as any, is the City Hall in New York City, which was being repaired when a walking delegate discovered something non-union. The repairing was stopped immediately, causing a long and costly delay; the contractor had to give up the job; a new man took charge and all the work previously done was undone and the materials carted away. Examples could be cited even more flagrantly tyrannical, as where contracts for repairs have been suddenly thrown up on some pretext, leaving an inhabited house without a foot of serviceable plumbing for months. The trade unions have grown in numbers, but, with the public in general, there can be no doubt that the unions have lost favor during the past year because of their despotic and violent methods.

A strike of the Virginia miners in sympathy with the anthracite strikers for recognition of the union, an eight-hour day, payment of wages by the week, and certain concessions relating to mining, occurred in June. It was soon compromised and no great losses resulted. A curious strike occurred in Birmingham because the Tennessee Coal, Iron and Railroad Company refused to collect a dollar from each of its employees to be turned over to the union for the assistance of anthracite strikers. The union was unable to collect its assessments, and tried to force the company to act as its collector. The company refused to deduct the amount from the wages of any man without his consent, whereupon the executive board of the Alabama miners expelled the recalcitrant miners and authorized a strike whereas a majority of the miners voted for the contribution. Much unfavorable comment was aroused by this high-handed action and the unions did not attempt to push the matter. The street railway employees of New Orleans struck on September 28 for an eight-hour day and 25 cents an hour instead of a ten-hour day and 17½cents an hour. Serious interference with business led the governor of Louisiana and the mayor of New Orleans to request arbitration of the points in dispute. On October 10 the company accepted the proposal to pay 20 cents an hour for a ten-hour day, and guaranteed a minimum wage of $1.50 a day. The strikers at first rejected, but afterwards accepted the terms, and the strike ended October 13. During October the motormen on the Hudson Valley Railway at Glens Falls, N. Y., went on strike, demanding the recognition of their union and an advance in wages. Violence being used by the strikers when the company attempted to run its cars with non-union employees, the State militia was called out to quell the disturbances. On October 8 the Schenectady Trades Assembly, having over 12,000 members, voted unanimously to recommend the expulsion from local unions of all members of the National Guard. The Painters and Decorators' Union of Schenectady, N. Y., soon after expelled one of its members because he belonged to the National Guard, and, at their demand, his employers discharged the man, though they recommended him as a good mechanic, willing to work for his employer's interests. The law explicitly states that any conspiracy to interfere in any way with a man exercising a lawful trade is a misdemeanor. The attorney-general, however, decided that the officers of the union could not be prosecuted for compelling his employers to discharge a man because he belonged to the militia, for they had not in terms demanded his discharge but only notified his employers that he was no longer a member of the Painters and Decorators' Union. The same union boycotted the Schenectady Railroad Company for employing non-union labor in the erection of a car barn. Behind this was an attempt on the part of the Trades Assembly to force the street railway employees into the federation of trades against their will. The boycott was an utter failure, but it led to the formation of a citizens' union to mediate between capital and labor. The strike on the Hudson Valley Road was

not in itself important, but the many important questions growing out of it, relating to the powers and immunities of trade unions, make it second only to the great coal strike in interest and significance. Sixteen States of the Union have central boards of arbitration, viz.: Massachusetts, New York, California, Colorado, Idaho, Illinois, Louisiana, Montana, Minnesota, Ohio, Utah, Wisconsin, New Jersey, Michigan, Connecticut, and Indiana. The boards usually consist of three members—an employer, an employee, and a neutral. The sixteenth annual report of the Massachusetts State Board of Arbitration and Conciliation for the year 1901 states that during that year the board mediated 108 cases involving 95 strikes. Official action was taken in 37 cases on joint petition, in 27 cases on notice from one party, and in 44 cases the board took the initiative.

Some Foreign Strikes.—The strike of many federated trade unions in Havana assumed grave proportions and threatened the very existence of the Republic of Cuba for a time. The violence was precipitated by the refusal of the street car employees to join the strike, whereupon the cars were attacked and a boycott was attempted. Owing to the patriotic attitude of General Gomez, the strike was prevented from becoming a rebellion, and perhaps a revolution. The city and national authorities acted promptly and the disturbance was soon quelled. The number of labor disputes in England was less in 1902, but the number of people affected was more than in any of the years 1896-1901. The total number of days' work lost, however, was less than in 1901.

Year.	Number of Disputes.	Work People Affected.	Total Number of Days' Idleness.
1901	642	179,546	4,142,287
1902	427	254,930	3,477,962

In Belgium, the Conciliation Law has worked no better than in France. In June, 1902, there were in existence 75 councils of industry and labor, for settling labor disputes. During the year 1901 but six disputes were referred to the councils, and in only one case was mediation successful.

See Austria-Hungary, France, and Spain.

Labor conditions were closely connected with the political movements, and the general strike of laborers was more a political than an industrial event. (See Socialism.) In Austria, many serious strikes occurred in consequence of the depression in industry. One of the most serious was the strike of the firemen of the Austrian Lloyd Steam Navigation Company at Trieste in February. Many sympathetic strikes followed and a general stoppage of industry accompanied by mob violence resulted. The depression in the metal trades was especially severe, causing unusually heavy emigration to America.

The manufacturers of Vienna have formed a Manufacturers' Strike Insurance Company, in order to protect themselves from losses due to strikes. Statistics from 1891 to 1897, give for Austria an annual average of 30,000 laborers on strike and 400,000 days of idleness on that account. On this basis the premiums of members are fixed at four-tenths of one per cent. of the declared pay list for the year. A rebate of 25 per cent. is given in some cases where the risk is slight. The Austrian company agrees to pay one-half of the registered wages of the strikers to the employer; but payments are made for no more than three months in case of a single strike, or six months in a single year. The indemnity is paid only in case the insurance company judges the strike to be unjustifiable. A demand by the laborers for the dismissal or engagement of any employee is regarded as unjust. So are also demands "which the state of business will not justify" and "demands which threaten the authority of the management." The first test is clear and unequivocal, but the last two are the points of disagreement in every strike. An executive committee investigates each strike as soon as it begins, and decides whether the employer is entitled to indemnity. Employers are obliged to give full information of every dispute as soon as it arises. The executive committee immediately sends a subcommittee to attempt a peaceful settlement. When they finally order the strike indemnity to be paid, it means that in their judgment the strikers are in the wrong, and that they have exhausted every means of conciliation. It is too soon to judge of the success of this latest scheme to solve the strike problem. This simple business project seems to possess about all the real advantages and none of the very serious disadvantages of compulsory arbitration boards. The manufacturers of Leipzig, Germany, are forming a similar organization. Labor disturbances were frequent in Spain also. The great strike at Barcelona threatened for a time to become a revolution. All industrial and trading associations joined in demanding a nine-hour day, with increased wages. The strikers took possession of the streets; rioting and violence occurred, and the city was put under martial law for some days. The strikers finally resumed work at the end of February without gaining their

point. Serious strikes, with rioting, occurred later in the year at Malaga and in the iron-smelting regions.

STYPTICIN. A new local hæmostatic devised by Prof. M. Freund, having the formula $C_{12}H_{14}NO_5Cl$. It has been used with success in cases of wounded mucous membrane after passage of bougies, the endoscope, etc., for arresting hemorrhage following extraction of teeth, removal of small dermoid tumors (as warts and condylomata), and to stop the bleeding of hemorrhagic ulcers. It is more easily applied to the urethra when combined with gelatine and made into suppositories. Stypticin is a synthetic compound and is a muriate of cotarnine.

SUEZ CANAL, a waterway connecting the Mediterranean and Red seas, 87 miles in length, comprising 66 miles of artificial canal and 2 miles of lakes. In 1900 transit dues amounted to 90,623,608 francs and, in 1901, 100,386,397 francs (larger than in any previous year). There passed through the canal, in 1900, 3441 vessels, aggregating 9,138,152 tons, and, in 1901, 3699 vessels aggregating 10,823,840 tons. In the two years British tonnage amounted to 5,605,421 tons and 6,252,819 respectively, and German 1,466,391 and 1,762,624 respectively. A regulation to take effect January 15, 1903, diminishes the transit rate by 50 centimes (9.65 cents) a ton. On February 15, 1902, an agreement between the canal company and the Egyptian government was signed for the construction of a railway between Ismailia and Port Said, and for a commercial harbor at the port.

SUGAR INDUSTRY. There were two leading topics of interest in the sugar industry during 1902. One was the Brussels conference, at which representatives of European governments negotiated a treaty containing provisions designed to eliminate some of the artificial conditions which have clustered around this business in Europe. The other, which was of as vital concern to the United States, was the negotiation of a reciprocity treaty with Cuba by which the product from that country secured preferential treatment by admission into the United States at a reduction of 20 per cent. in duty. This treaty, however, failed of ratification during the year, so that its effect was not felt in the markets of the United States. (See CUBA.) The regulations of the Brussels Conference do not go into effect until September, 1903, so that the results of this settlement did not largely affect conditions during the year, although naturally, to some extent, anticipated and discounted. The conference was the outcome of an agitation that has been carried on in Europe for a number of years. As a result of bounties, direct and indirect, and other forms of artificial stimulation the manufacturing of beet sugar had been carried on with great profit to the manufacturers and the business had become centred in trusts or syndicates usually known as *cartels*. The result was that sugar was sold for export at much lower prices than to the domestic consumers inasmuch as there was a bounty or rebate on all sugar exported. This stimulated export of sugar naturally disturbed business conditions in other nations. Inasmuch as these abuses prevailed among nearly all European nations it was determined to do away with them through an international agreement. Accordingly a conference to pass on this matter was proposed, and the first meeting of the delegates was held at Brussels on December 16, 1901. After an interchange of views the delegates returned to their respective countries for final instructions from their governments, and in February, 1902, the sessions of the conference were resumed, with the result that on March 5, a treaty was signed by delegates representing the German Empire, Austria-Hungary, Belgium, Spain, France, Great Britain, Italy, Holland, and Sweden and Norway. In this treaty the contracting parties bound themselves to suppress the existing direct and indirect bounties, and agreed not to establish such bounties during the duration of the convention. Sweetmeats, chocolates, biscuits, condensed milk, and other analogous products containing a large part of sugar are classed as sugar, and come under the regulations prescribed by the treaty. The different forms of bounties are enumerated as follows: Direct bounties granted to exports; indirect bounties granted to production; total or partial exemption from taxation granted for a part of the manufactured output; profits derived from surplusage of output; profits derived from the exaggeration of the drawback; advantages derived from any surtax in excess of that fixed by the treaty. It was provided that all factories where sugar was manufactured should at all times be under the surveillance of revenue officers. The surtax was limited to a maximum of six francs per 100 kilograms for refined sugar and sugars assimilable thereto, and five and a half francs for other sugars. A special duty not less than the bounty granted was to be levied on imports of sugar from nations which grant bounties on production or exports. The contracting parties also agreed to admit at the lowest rates possible sugars imported from countries parties to the convention or their colonies that adhere to the provisions of the treaty. Cane and beet sugar cannot be subject to different rates of duty. As Spain, Italy, and Sweden were non-exporting countries certain privileges were allowed them so long as they did not export sugar. The treaty also

provided for the establishment at Brussels of a permanent commission to have charge of the surveillance of the execution of its various provisions. September 1, 1903, was the date set for the treaty to go into effect, and it was to endure for five years. Formal notices of its ratification were to be forwarded to Brussels before February 1, 1903, and a number of these were duly received during the year, while the others were expected within the allotted time.

Sugar Crops of the World.—The following table from Willett and Gray's *Statistical Sugar Trade Journal*, gives the estimated entire sugar production of all the countries of the world, including local consumptions of home production wherever known.

	1902–03	1901–02	1900–01	1899–1900
United States—Louisiana	250,000	310,000	270,000	170,164
Porto Rico	100,000	85,000	80,000	35,000
Hawaiian Islands	315,000	317,509	321,461	258,521
Cuba, *crop*	880,000	850,181	635,856	308,543
British West Indies—Trinidad, *exports*	45,000	45,000	46,500	41,000
Barbados, *exports*	43,000	43,000	55,000	50,000
Jamaica	30,000	30,000	30,000	27,000
Antigua and St. Kitts	25,000	25,000	25,000	18,000
French West Indies—Martinique, *exports*	28,000	34,938	39,702	30,000
Guadeloupe	41,000	41,000	39,000	40,000
Danish West Indies—St. Croix	13,000	13,000	13,000	12,020
Haiti and San Domingo	45,000	45,000	45,000	45,000
Lesser Antilles, not named above	8,000	8,000	8,000	8,000
Mexico, *crop*	115,000	100,000	95,000	78,000
Central America—Guatemala, *crop*	9,000	9,000	9,000	12,000
San Salvador, *crop*	5,000	5,000	5,000	5,000
Nicaragua, *crop*	3,500	3,500	3,500	4,000
Costa Rica, *crop*	1,500	1,500	1,500	1,000
South America—Br. Guiana (Demerara), *exports*	125,000	121,948	84,559	90,079
Dutch Guiana (Surinam), *crop*	13,000	12,750	13,000	9,600
Venezuela	3,000	3,000	3,000	2,000
Peru, *exports*	115,000	113,596	110,695	100,381
Argentine Republic, *crop*	120,000	135,000	114,252	91,507
Brazil, *crop*	187,500	345,000	320,000	322,000
Total in America	2,520,500	2,697,922	2,368,025	1,735,815
Asia—British India, *exports*	15,000	15,000	15,000	10,000
Siam, *crop*	7,000	7,000	7,000	7,000
Java, *crop*	842,812	767,130	709,928	721,993
Japan (cons'n 170,000 tons, mostly imported)	.....	.....	.....	2,000
Philippine Islands, *exports*	102,000	78,637	55,400	62,785
China (cons'n large, mostly imported)	.....	.....	.....	.....
Total in Asia	966,812	867,767	787,328	803,778
Australia and Polynesia—Queensland	75,000	120,858	92,544	124,070
New South Wales	18,000	18,000	19,000	15,500
Fiji Islands, *exports*	35,000	31,000	33,000	31,000
Total in Australia and Polynesia	128,000	169,858	144,554	170,570
Africa—Egypt, *crop*	90,000	96,200	94,880	98,500
Mauritius	140,000	147,828	175,267	157,025
Réunion	35,000	35,000	35,000	35,000
Total in Africa	265,000	279,028	305,147	290,525
Europe—Spain	28,000	28,000	28,000	33,215
Total cane sugar production (W. & G.)	3,908,312	4,042,575	3,633,054	3,033,903
Europe beet sugar production (Licht)	5,620,000	6,848,038	6,046,518	5,518,048
United States beet sugar production (W. & G.)	195,800	163,126	76,859	72,944
Grand total cane and beet sugar—tons	9,724,112	11,053,739	9,756,431	8,624,895
Estimated decrease in the world's production	1,329,627	.....	.....	.....

Sugar in the United States.—Aside from the agitation over the tariff on sugar imported from Cuba there were little discussion and few actual changes made in the tariff schedules. Sugars from the Philippines after March 8, 1902, were admitted at a reduction of 25 per cent. from the rates of the Dingley Bill, but the usual tariff of 1.685 per pound on sugar of 96° polariscope test was collected on all foreign sugar. In this, however, must not be counted that from the Hawaiian Islands (296,000 tons) and Porto Rico (82,700 tons) which was admitted free of duty. As the production of sugar was in excess of the demand it was natural that prices should fall and a low point was touched in July when the price was 3¼ cents a pound for centrifugal 96° test; this, however, improved, and in December sugar sold at 3.94, making an average for the year of 3.542 or .505 less than the average for 1901.

The consumption of sugar, raw and refined, consumed in the United States during

1902, as compared with 1901, is given in the accompanying table (Willett & Gray), which includes the more important statistics concerning the domestic consumption:

	1902	1901
Total consumption of all sugar, foreign and domestic, in the entire country, including Pacific Coast	2,566,108 tons	2,372,316 tons
Increase over preceding year	193,972 "	152,469 "
" " " "	8.169 per ct.	6.858 per ct.
Consumption consisted of:		
Domestic cane	296,000 tons	292,150 tons
" beet	148,526 "	124,859 "
Maple	5,325 "	5,000 "
Molasses sugar	53,600 "	17,977 "
Total consumption—domestic sugars	473,451 "	439,986 "
" " foreign cane sugar	1,971,236 "	1,672,529 "
" " " raw beet	96,918 "	217,286 "
" " " refined	24,503 "	42,515 "
Total production from foreign countries and insular possessions	2,092,657 "	1,932,330 "
Of which from Hawaii	311,139 "	309,070 "
" " Porto Rico	84,827 "	66,279 "
" " Philippine Islands	2,550 "	5,100 "
Total amount refined sugar consumed	2,521,359 "	2,287,828 "
Of which manufactured by A. S. R. Co.	1,436,474 "	1,325,406 "
" " " " independent refiners	924,106 "	812,048 "
" " " " beet-sugar factories	136,276 "	107,859 "
" " " " foreign refiners	24,503 "	42,515 "
Percentage of refined manufactured by A. S. R. Co.	56.97 per ct.	57.9 per ct.
" " " " independent refiners	36.65 "	35.5 "
" " " " beet-sugar factories.	5.41 "	4.7 "
" " " " foreign refiners	.97 "	1.9 "
Consumption of sugar in raw or plantation state	44,479 tons	34,488 tons
Estimated undistributed stock of refined	30,000 "	30,000 "
National Sugar Refining Company production (included with independent refiners)	350,000 "	276,000 "
Average difference between raw and refined	.913c. per lb.	1.003c. per lb.

The consumption per capita was 72.8 pounds in 1902, 69.7 pounds in 1901, 66.6 pounds in 1900, 61.0 pounds in 1899, 60.3 pounds in 1898, 63.5 pounds in 1897, 60.9 pounds in 1896, 64.23 pounds in 1895, 66.64 pounds in 1894, 63.83 pounds in 1893, 63.76 pounds in 1892, 67.46 pounds in 1891, 54.56 pounds in 1890, 52.64 pounds in 1889, 54.23 pounds in 1888, 53.11 pounds in 1887, 52.55 pounds in 1886, 49.95 pounds in 1885, and 51 pounds in 1884.

The Division of Foreign Markets reports the exports of refined sugar from the United States for the year ending June 30, 1902, as 7,213,050 pounds, valued at $292,715, and the imports of sugar as 3,031,915,875 pounds, valued at $55,061,097.

Beet Sugar Industry.—Beet sugar manufacturing continues to grow and seems destined to occupy an important place among the industries of the United States. This growth has been steady and constant and sugar authorities express the opinion that while it would be greatly aided by duties on Cuban and colonial sugar, nevertheless such duties are not essential as sugar beets can be produced in this country as well as in Europe. From six factories producing 12,018 tons of sugar in 1892-93 the industry has increased until in 1902 there were 47 factories producing an amount of sugar estimated at 195,800 tons. During 1902 six new factories were added and five new ones were proposed for erection in the following year. The efficiency of these factories is continually improving, and better machinery and methods of operation are being introduced. The output as estimated by Willett & Gray for the season 1902-03, as compared with the statistics for the previous year, is given in the accompanying table:

States.	1902-03		1901-02	
	Estimate Beet Crop.	Estimate Sugar Production	Beets Received.	Sugar Produced.
	*Tons.**	*Tons.**	*Tons.**	*Tons.**
New York	26,785	2,500	42,354	4,049
Wisconsin	38,928	3,463	25,000	2,589
Ohio	12,946	1,339	25,000	3,126
Michigan	564,285	57,678	442,062	46,692
Minnesota	33,928	3,393	24,107	2,455
Nebraska	82,143	7,768	62,040	6,680
Colorado	272,320	29,643	181,842	19,977
Utah	148,214	15,625	117,260	12,748
Oregon	15,971	1,964	12,500	1,250
Washington	13,392	1,518	8,929	857
California	573,727	70,909	580,843	62,723
Total	1,777,639	195,800	1,521,957	163,126

*Tons, 2,240 pounds each.

In Europe beet sugar plays a far more active part than in the United States, and is manufactured to a greater extent than cane. The crop for the year 1902-03, as compared with previous years according to the estimate of Licht, the European sugar authority, is as follows:

	1902-03	1901-02	1900-01	1899-1900	1898-99	1897-98
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*
Germany	1,730,000	2,299,408	1,984,186	1,796,681	1,721,718	1,852,857
Austria	1,050,000	1,302,038	1,094,043	1,108,007	1,051,290	831,667
France	900,000	1,183,420	1,170,332	977,850	830,132	821,235
Russia	1,225,000	1,110,000	918,838	905,737	776,066	738,715
Belgium	240,000	350,000	333,119	302,865	244,017	265,397
Holland	120,000	203,172	178,081	171,029	149,763	125,658
Other countries	355,000	400,000	367,919	253,929	209,115	196,245
Total	5,620,000	6,848,038	6,046,518	5,518,048	4,982,101	4,831,774

Sugar Cane.—Progress continues in the direction of the erection of larger and better equipped sugar-houses at central points to which a number of cane-growers transport the sugar cane. Under this system the number of cane-growers is increasing. In recent years there has been an increasing shortage of labor in the cane fields and this is giving rise to improved devices and methods for handling cane. Distance and fertilizer experiments with sugar cane conducted by the East Java Experiment Station resulted in the largest yield and the highest percentage of sugar from rows 3.5 feet apart and a large increase in yield with better quality of cane from the use of commercial fertilizers. At the West Java Station washing the cuttings and treating them with Bordeaux mixture increased the number of growing buds and caused them to sprout earlier. The station maintained by the Hawaiian Sugar Planters' Association is conducting fertilizer and irrigation experiments with sugar cane. Under the conditions existing in Hawaii nitrate of soda in large quantities was harmful, but small applications were very useful. Cane trash as a fertilizer increased the yield of both cane and sugar. The results of the irrigation experiments favored the application of two inches of water at intervals of a week rather than smaller quantities. The experiments in the improvement of varieties of cane by selection carried on by the stations in Barbados and Java have already given useful results. Culture experiments at the Louisiana Station for four years resulted in favor of the use of the disk and middle cultivators. These implements can be adjusted to make small or large ridges and the depth can be regulated so that only a minimum amount of roots are cut in cultivating. This method was found to conserve moisture and to increase microbic action in the soil.

Sugar Beets.—Culture experiments in Egypt have shown that beets of high quality can be grown there. Upper Egypt is considered the best sugar-beet section because less cotton is grown there than in lower Egypt. At the New York State Experiment Station experiments with commercial fertilizers and stable manure on sugar beets resulted in beets of high quality from both methods of manuring. Stable manure, applied in the spring before planting, gave beets of somewhat better quality than commercial fertilizers and did not induce an excessive growth of leaves. Soil tests at the Michigan Station showed that clay loam soils produced the largest tonnage and the highest percentage of sugar, while muck soils produced beets usually so low in sugar content as to make them unprofitable for sugar manufacture. The exhaustive effects of the sugar-beet crop were observed by comparing the results on fertilized and unfertilized plats for three years. The decrease in yield on the unfertilized plats as compared with those receiving annually a normal application of fertilizers was 1.25 per cent. the first year, 11.25 per cent. the second year, and 13.85 per cent. the third year. At the Nebraska Station beets obtained from heavy soil were better in quality than those grown on light soil. Experiments in cultivating the beet crop showed that for hot, dry summers with high winds the soil mulch, in order to be effective, must be three or four inches thick. Late cultivation was also found effective in conserving soil moisture.

SUICIDES. See CRIME.

SULPHUR. See MINERAL PRODUCTION.

SUMATRA, the westernmost of the Dutch East Indies (*q.v.*), has an estimated area of 161,612 square miles and an estimated population of over 3,210,000. Dutch control, exercised through a governor under the governor-general of the East Indies, is merely nominal in the interior, while in the district of Achin the natives have contended against the authority of the Dutch ever since the latter took the island. The estimated area of Achin, which occupies the northwestern part of Sumatra, is 20,471 square miles; the population, which is almost wholly Mohammedan, was estimated in 1898 at 535,432. In 1873 the Dutch declared war on the

Achinese, and through the successful expeditions of General van Heutsz in 1898-99 it was thought that Dutch government had finally been established. But soon hostilities recommenced and there was considerable fighting in 1901 and 1902. In November of the latter year a motion was introduced in the lower house of the Dutch parliament by M. van Kol and five other Socialist deputies for the conclusion of a treaty of peace with the sultan and other chiefs of Achin on the basis of their complete independence. M. van Kol, who shortly before had visited Sumatra, held that although Achin was largely pacified, the sultan, who had always escaped capture, would be able to carry on guerilla warfare indefinitely. Still later in the year, however—as also at the end of 1901—the submission of the sultan to the Dutch seemed imminent.

SUN. See ASTRONOMICAL PROGRESS.

SUNDAY-SCHOOL ASSOCIATION, NEW YORK STATE, an interdenominational organization, established in 1854, for the improvement and extension of Sabbath-school work. Several field missionaries are employed in the eight districts into which the counties of the State are divided. Among other activities the association conducts progressive normal instruction, offering five courses, in which are enrolled about 100 classes. The annual report (1902) of the treasurer shows total receipts for the work of the association amounting to $11,892. There are now under its auspices 8487 Sunday schools, 50 new schools having been organized during the past year, with 1,283,474 members whose benevolent contributions aggregated $396,508. The forty-seventh annual convention of the association was held June 10-12 in Saratoga Springs; that for 1903 will meet in Utica. Chairman of the executive committee, A. F. Shauffler, D.D.; secretary and treasurer, Timothy Hough; State superintendent, A. H. McKinney, Ph.D.; headquarters, 641 University Block, Syracuse.

SUNDAY-SCHOOL CONVENTION, INTERNATIONAL. The international Sunday-school lesson system was instituted in 1872 at a convention in Indianapolis, and from 1875 dates the beginning of the series of international conventions of Sunday-school workers, the tenth being held June 26-30, 1902, in Denver, Col. This last meeting, one of considerable interest, was attended by more than 1100 delegates from 54 States, provinces and Territories, and representing 25 denominations. The election for a new chairman of the executive committee resulted in the unanimous choice of W. N. Hartshorn, of Boston. The convention was characterized by progress in Sunday school methods, the lesson committee recommending several improvements, one of which was that of advanced courses designed to attract adult students. This recommendation, however, was rejected on the ground that it would break up the uniformity of the present courses. An important change was authorized by the convention in the adoption of an optional one year's course for beginners, which is to be supplied by the lesson committee in addition to the regular graded lessons. There was much discussion illustrating the tendency toward improvement which made the meeting "one of the greatest Sunday-school conventions ever held." A committee was appointed for an extended tour of the world in the interests of Sunday-school work. The International Lessons now have some 25,000,000 students, nearly 45 per cent. of whom are in this country; the normal classes number 1300 and are attended by 14,000 members.

SUNDAY-SCHOOL UNION, AMERICAN, an organization, founded in 1824, for the purpose of establishing Sunday schools in the United States wherever needed and to provide them with suitable literature. During the seventy-eight years of its existence, the union has organized 106,413 schools, having 600,271 teachers and 4,258,913 scholars and has given aid in 265,118 additional cases; it has distributed over $9,000,000 worth of publications by sales and gifts. The record of the society for the year ending March 1, 1902, shows: New Sunday schools organized 1731, and old Sunday schools reorganized 644, with 9328 teachers and 84,415 scholars; Bibles distributed 9065, and Testaments 11,342. The American Sunday-School Union, which is supported entirely by voluntary contributions, has missionaries in every State, and its publishing interests are extensive and varied. Corresponding secretary, John R. Whitney, 1122 Chestnut Street, Philadelphia.

SUPRARENAL EXTRACT and its active principle adrenalin rendered increased usefulness during 1902. The drug is one of the most remarkable hemostatics and heart stimulants known. Internally it has been used with marked success in nose-bleed, pulmonary hemorrhage, uterine bleeding, hematuria, hemorrhage from the stomach and intestines, pneumonia, certain heart affections, and Addison's disease (a fatal malady, due to a destructive lesion of the suprarenal glands). Locally it is used as a hemostatic in the nose, and to shrink the mucous membrane and render it bloodless during operations, and to subdue the congestion of the nasal tissues in hay fever.

SVERDRUP, Otto Neuman, an Arctic explorer, returned to Norway in 1902 after a four years' absence. Born in 1855 in Bindal, Heligoland, he followed the sea from the age of seventeen, passed his mate's examination in 1878, and afterwards, for some years, was commander of a ship in the merchant service. In 1888-89 he participated in the Greenland expedition, and in 1893 accompanied Nansen as commander of the *Fram*. In 1898, as leader of an expedition, he entered Baffin Bay with the *Fram*, which, after reaching the vicinity of Cape Sable, was imprisoned in the ice for a year. After proceeding some distance into Jones's Sound in the summer of 1899, his ship was again caught by the ice and was held for three more years. He had hoped to circumnavigate Greenland and might have made a dash for the pole if he had been able to establish a favorable base of supplies. The southwest and western coasts of Ellesmere Land were mapped, and islands were discovered north of the Peary Archipelago. He emerged from the polar ice in the summer of 1902, reached Goodhaven, Greenland, August 18, and returned to Norway in the autumn. See Arctic Exploration.

SWAMI VIVEKANANDA, a Hindu religious reformer, died August 4, 1902, at Howrah, India. He came into prominence first about fifteen years ago when preaching in upper India, where he was drawing vast concourses of natives. He then went into retirement for a short time, and appeared later as a prophet of reformed Vedantaism. He denounced the excess of sacerdotal ceremonialism, and the evil effects of the caste system, which he considered the chief cause of the degradation of the Hindus. In 1893 he came to the United States, where he attended the congress of religions at the World's Fair in Chicago, and established in New York the Vedanta Society, which was incorporated under the laws of the State in 1898, and of which Dr. Herschell C. Parker of Columbia University is president. He remained in America three years lecturing, and returned for a visit in 1900. In India he established two periodicals in the interests of the reformed faith, and his lectures in English are an important contribution to modern Hindu religious literature. The charm of his personality was everywhere felt, and was no doubt an important factor in the success of his preaching.

SWAYNE, Wager, an American soldier, lawyer, and orator, died in New York City, December 18, 1902. He was born in Columbus, O., November 10, 1834, the son of Noah H. Swayne, an associate justice of the United States Supreme Court; and after graduating from Yale University in 1856, entered the Cincinnati Law School, from which he graduated in 1859. At the outbreak of the Civil War he was made major of the Forty-third Ohio Volunteers, and took part in Pope's Missouri campaign of 1861-62, in the capture of Island Number Ten, and in the battle of Corinth; and he later served with Sherman in the Atlanta campaign, receiving wounds at Balkahatchie that necessitated the amputation of a leg. While acting from 1865 to 1868 as assistant commissioner in Alabama of the Freedmen's Bureau, he established at Talladega the first school in the south for negroes, and by founding and assisting many other similar institutions, he rendered a lasting service to the cause of negro education. He was brevetted major-general U. S. A. in 1866. After his retirement from military service he practiced law in Toledo, O., until 1880, when he removed to New York City, and acquired a large legal practice. He was president of the Ohio Society of New York and was identified with several other organizations. In and around the metropolis he was a popular public speaker on many topics.

SWEDEN, a constitutional monarchy occupying the eastern portion of the Scandinavian peninsula. The capital is Stockholm.

Area, Population, etc.—The total area is 172,877 square miles, and the population January 1, 1901 was 5,136,441, almost all of whom are Scandinavian. The largest cities are Stockholm, population (1901) 303,356, and Göteborg, population 130,619. The state church is the Lutheran, its adherents numbering over three-fourths of the population in 1890. Attendance in the state elementary schools is free and compulsory, the attendance in 1899 being 741,109. There are universities at Upsala and Lund, and medical, normal, and technical schools.

Government and Finance.—The executive authority rests with the king (also king of Norway), who is assisted by a responsible ministry of eleven members. The legislative power is vested in a diet of two chambers, a first chamber of 150 elected by municipal corporations and provincial diets, and the second chamber of 230 members chosen by popular vote on a suffrage restricted by certain property qualifications. The ruling sovereign, Oscar II., ascended the throne in 1872. The Swedish army consists of the *Värfvade*, or enlisted troops, the *Indelta*, or militia, and the *Värnpligtige*, or reserve. The total peace strength of the active army in 1901 was 37,200 officers and men. The navy, maintained wholly for coast defense, consists of ten first-class armored turret ships and about forty torpedo cruisers, torpedo boats, and gunboats. The monetary standard is gold, and the unit of value is

the krone. The budget figures for revenue and expenditure in 1901 balanced at 145,681,000 kroner, and in 1902 at 156,143,000 kroner. Customs and imposts constitute the chief sources of revenue, and the largest items of expenditure are for the army and navy and education. On January 1, 1901, the public debt, contracted entirely for the state railway construction, was 337,898,733 kroner.

Industries, Commerce, etc.—Cereals, principally oats, wheat, barley, and rye, are extensively cultivated, and the potato crop is valuable. Forests of pine, birch, and fur cover one-half of the country's area, and constitute by far the most important and valuable products. The mineral products are very rich. The iron mined in 1900 amounted to 2,607,925 tons. Silver, lead, copper, zinc, and manganese are also mined successfully, and the coal deposits have been extensively worked of late years. Manufactories of wood, iron, and steel works are of growing importance. The imports in 1899 were valued at 504,788,683 kroner, and the exports 388,184,767, of which timber was valued at 178,553,581 kroner. The trade is largely with Great Britain, Germany, Denmark, and Russia. In 1902 there were 7,192 miles of railway in operation of which 2392 belonged to the state.

History.—An event of both political and industrial significance was the strike in May, 1902, of the Social Democratic party in support of the suffrage movement. Simultaneously with the beginning of the debates in parliament on the suffrage bill, May 15, all the adherents of the party throughout Sweden stopped work, and in Stockholm, especially, there was a complete tying-up of business. Traffic of every kind was suspended, all factories and shops were closed, and the printing presses stopped running, 15,000 persons altogether joining in the strike. At Göteborg and Malmö only partial strikes occurred. At Helsingborg, as at Stockholm, the tie-up was complete. After three days the strike ended without disorder upon the promise of the government to introduce a bill in 1904 for broader suffrage reform. Both chambers agreed to the proposition, whereupon the labor leaders declared the strike at an end.

In July, 1902, a change of ministry occurred by the resignation of the Von Otter cabinet. Herr Erik Gustav Boström, a former prime minister, was charged by King Oscar with the formation of a new cabinet. The ministry as reorganized retained Herr von Lagerheim, as minister of foreign affairs. The new ministers were: Justice, Ossian Berger; finance, Ernst Meyer; interior, H. O. Westring; and public worship, Karl von Friesen. The old ministers for foreign affairs, marine, war, and agriculture were retained. The new cabinet was described as one friendly to suffrage reform, being constituted chiefly of Liberal members. In September the elections to the second chamber of the Riksdag occurred, and of the 230 members chosen 102 were Liberals (Left), 94 belonged to the Right (Conservative, or Rural party), and 32 were Independents, among the latter being 4 Social Democrats. The Liberals gained 25 and lost 13 seats; the Right won 3 and lost 26 seats; and the Independents won 15 seats, losing only 4. A legislative measure of importance was enacted by the parliament, establishing a progressive income tax to meet the cost involved in the reorganization of the army, provided for in 1901. Toward the end of 1902 the industrial situation was characterized by widespread distress on account of famine in Northern Sweden, due chiefly to the failure of crops and the scarcity of fish. About 70,000 persons were affected, many of whom were reported to be subsisting on pine bark ground to powder and mixed with stewed Iceland moss. It was estimated that $6,000,000 would be necessary to save the population from decimation. About $200,000 was subscribed for relief of the sufferers.

SWEDENBORGIANS. See New Jerusalem, Church of the.

SWIMMING. In 1902, E. Carroll Schaeffer of Reading, Pa., established, without a chance of doubt, his position as the leading amateur swimmer of the United States. He won all the events in the Amateur Athletic Union programme decided at Travers Island, N. Y., on July 12, August 23 and September 20, 1902, and in doing so set a number of new records across tidal water. Following are the results at the different distances: 220 yards, July 12, won by Schaeffer, 2 minutes 58 4-5 seconds; 880 yards, July 12, won by Schaeffer, 13 minutes 27 2-5 seconds (new American record); 440 yards, August 23, won by Schaeffer, 6 minutes 18 1-5 seconds (new American record); one mile, August 23, won by Schaeffer, 28 minutes 14 3-5 seconds (new American record); 100 yards, September 20, won by Schaeffer, 1 minute 7 seconds. In the course of these races, Schaeffer also made new American figures at intermediate distances, as follows: 330 yards, 4 minutes 53 4-5 seconds; 550 yards, 8 minutes 21 3-5 seconds; 660 yards, 10 minutes 4 4-5 seconds; 770 yards, 11 minutes 51 3-5 seconds; 990 yards, 15 minutes, 45 3-5 seconds; 1100 yards, 17 minutes 32 seconds; 1210 yards, 19 minutes 19 seconds; 1320 yards, 21 minutes 11 seconds; 1430 yards, 22 minutes 58 3-5 seconds; 1540 yards, 24 minutes 49 4-5 seconds; and 1650 yards, 26 minutes 34 3-5 seconds, thus giving him all records from 330 yards to one mile. In the 220 yards race, on July 12, he set a new record

for 110 yards, at 1 minute 19 3-5 seconds, afterwards reduced by C. Ruberl, New York Athletic Club, in the 440 yards race, on August 23, to 1 minute 17 1-5 seconds.

SWITZERLAND, a federal republic of central Europe bounded by Italy, France, Germany, and Austria. The capital is Berne.

Area and Population.—The aggregate area of the twenty-two cantons comprising the confederation is 15,976 square miles. The legal population by the census of December, 1900, was 3,315,443, and the actual population, 3,325,023. Racially the different elements of the population are about as follows: German, 70 per cent.; French, 23 per cent.; and Italian, 6.7 per cent. The German-speaking population in 1900 was 2,313,105; the French-speaking, 733,220; and Italian, 222,247. The populations of the principal towns (1901) were: Zurich, 152,942; Basel, 111,009; Geneva, 105,139; Berne, 64,864; and Lausanne, 47,039. Complete freedom of worship exists and there is no state church. Protestants constitute 59 per cent. of the population, and Roman Catholics 40 per cent.

Government, Finance, etc.—The present constitution, adopted in 1874, vests the legislative power in a parliament of two chambers, a state council of 44 members chosen two from each canton, and a national council of 147 members elected for three years by popular vote. The united houses, known as the Federal Assembly, elect a Federal Council of seven, for a three-year term, from whom they also choose annually a president for the federation and a vice-president for the council. The principles of initiative and referendum are in force. The powers of the cantonal administration, exercised generally through representative councils, extend to all matters not covered by the federal constitution. The president for 1902 was Joseph Zemp, of Entlebuch, and the vice-president, A. Deucher, of Thurgau, who, according to the generally accepted custom, was chosen president for 1903. There is no standing army, but a militia organization of 518,265 men exists, divided according to ages into three classes, the *Elite*, the *Landwehr* and the *Landsturm*. The chief source of revenue is the customs, there being no direct federal tax. The revenue in 1901 amounted to 101,924,682 francs, and the expenditure to 105,533,089. The budget estimates for 1902 were 102,240,000 francs for revenue, and 108,120,000 francs for expenditure. The public debt on January 1, 1901, was 92,424,387 francs.

Industries, Commerce, etc.—One-sixth of the area is under forests. Agriculture in the fertile valleys is in a high state of development, and valuable crops of wheat, oats, maize, barley, flax, hemp, and tobacco are raised. The manufacturing industries are various and extensive, consisting chiefly of silks, cottons, linens, lace, thread, clocks and watches, leather goods, gloves, pottery, and cheese. The imports in 1900, of which the principal items were foodstuffs, textiles, minerals, and machinery, were valued at 1,118,569,803 francs, and the exports 863,115,323 francs, the materials of greatest value being silks, cotton, and clocks and watches. The trade is largely with Germany, France, Italy, and Great Britain. There were in 1902 about 2400 miles of railway and 200 miles of tramway in operation. The ownership of the railway lines is at present being gradually transferred to the confederation.

HISTORY.

Relations with Italy.—In April, diplomatic relations with Italy were broken off on account of the publication by an anarchist paper of an article deemed insulting to the memory of the late King Humbert, and on account of the refusal of the Federal Council to prosecute the offender. When the Italian minister, Signor Silvestrelli, made a request for his prosecution, he was informed that a matter of this kind must be taken up through diplomatic channels and upon complaint of the government concerned. The controversy on this point eventually resulted in the Federal Council's demanding the recall of Signor Silvestrelli and the appointment of a new minister. This the Italian government refused to do and at once discontinued official relations with M. Carlin, the Swiss minister at Rome. Diplomatic relations were resumed on July 30, chiefly through the good offices of the German government. See ITALY (paragraph Foreign Relations).

Political and Legislative.—The general election to the national council, the membership of which owing to the increased population had been raised from 147 to 167, took place on October 26, and resulted in the return of a strong Radical-Democratic majority. On April 1 the new house of parliament, the construction of which was begun in 1894, was formally opened by the president of the confederation. One of the chief matters of legislative discussion was the electoral law providing for a rearrangement of the arrondissements and the redistribution of members of the national council. Out of the discussion grew a movement in favor of amending the constitution so as to distribute representation in the national council according to the number of Swiss inhabitants, instead of on the basis of the total population, as is now the case. A petition for a constitutional amendment on this question received the required number of signatures and will be duly submitted to the voters. Another measure which was the subject of discussion in the national legislature was

the proposition to make grants from the treasury of the confederation to the cantonal governments in aid of primary schools. It was finally agreed that this could not be done without an amendment to the constitution, and the Federal Council was accordingly authorized to present a constitutional amendment in the form of an additional article (not a revision).

An administrative measure of note was an order of the Federal Council, dated August 19, prohibiting the establishment of religious congregations and orders. This measure was adopted to meet the situation created by the settlement in Vaud and Valais of numerous religious associations which migrated from France after the passage of the French Associations law in 1901. The congregations were given ninety days in which to leave the country.

The Industrial Situation.—The industrial situation was marked by disorders and strikes in several localities, the local police reinforced by the confederation troops being called out to preserve order. In Geneva in the month of October a strike of 10,000 street car and building trade employees was brought about, the strikers alleged, by the refusal of the street car companies to comply with the arbitration decision by which a previous strike had been ended. For a time the strike resulted in the closing up of the shops and theatres and the suspension of the publication of the newspapers. During the progress of the strike some 300 persons were arrested, and of these 120 were expelled from the country. The employees resumed work on October 12.

SYRIA. See ARCHÆOLOGY and TURKEY.

TALC. See MINERAL PRODUCTION.

TALL BUILDINGS. The construction of tall buildings of steel and masonry went on with undiminished activity during 1902. While some of the new structures of the year were of considerable note, some of them called for engineering designs departing from well established and familiar standards, and the description of one will answer for the whole class as an illustration of recent practice. In some respects the most notable tall building of the year 1902 was the Fuller Building, or, as it is more commonly designated, the Flat Iron Building, in New York City. This building occupies the site bounded by Broadway and Fifth Avenue, between Twenty-second and Twenty-third streets, on a triangular lot, the apex of the triangle being at the junction of Broadway and Fifth Avenue at Twenty-third Street, and derives its name from the shape of the lot. The building is 21 stories high, about 285 feet above the curb. The great height of the building and its isolated site and comparatively small footing made the engineering problem in its construction quite different from that of most high buildings. The wind exposure was a factor to be considered, and the architect and engineer in dealing with it took especial pains to provide ample resistance against wind pressure. Special efforts were made to secure great rigidity in the construction and at the same time not interfere with either the windows or the interior arrangement of the building. The building of the heavy cornices was also a further feature of great attention in planning the construction.

To support the structure there are thirty-six main columns. A view of the building is deceptive as to the strength of its footings, as these extend under the sidewalk and give it a much greater breadth than is at first apparent. The masonry of the building is carried on plate girders, so that it rests on the steel construction, being practically curtain walls. The architects of the building were D. H. Burnham & Company, of Chicago.

TALMAGE, THOMAS DE WITT, an American clergyman of the Presbyterian church, died at Washington, D. C., on April 12, 1902. He was born at Bound Brook, N. J., January 7, 1832; studied at the University of the City of New York (now New York University), graduated in 1856 at the Reformed Dutch Theological Seminary, New Brunswick, N. J., was ordained to the ministry in the same year, was pastor of the Reformed Church at Belleville, N. J., from 1856 to 1859, and of that at Syracuse, N. Y., from 1859 to 1862. After a seven years' pastorate (1862-69) at the Second Church of Philadelphia, Pa., he took charge (1869) of the Central Presbyterian Church of Brooklyn, N. Y., later known as the Tabernacle Church, from the large new edifice constructed for its accommodation in 1870. This building was two years later (1872) destroyed by fire. A second, built in 1873, with seating capacity of 5000, and a third of further increased capacity, were burned in 1889 and 1894, respectively. Talmage's Brooklyn pastorate closed in the year last mentioned. The Tabernacle church, whose membership was, as last reported, 4447, then ceased to exist. Dr. Talmage in 1895 for a time conducted in the Academy of Music, New York City, a Sunday afternoon service, and from 1895 to 1899 was co-pastor of the First Presbyterian Church of Washington, D. C. He was editor in 1873-76 of *The Christian at Work* (New York), in 1877-78 of *The Advance* (Chicago), in 1879-89 of *Frank Leslie's Sunday Magazine* (New York), and from

THE FULLER ("FLAT IRON") BUILDING
New York

1890 of *The Christian Herald* (New York). His immediate pulpit influence, for many years so extensive, was greatly supplemented by the weekly publication of his sermons in 3600 religious and secular periodicals of various languages. He also appeared with success as a lyceum speaker. In 1884 he received the degree of D.D. from the University of Tennessee. Among his published volumes, including collections of sermons, are *The Almond Tree in Blossom* (1870), *Old Wells Dug Out* (1874), *Every-day Religion* (1875), *The Brooklyn Tabernacle* (1884), *From the Pyramids to the Acropolis* (1892), *From Manger to Throne* (1894), and several others. It is stated that the greater proportion of the works displaying his name were unauthorized compilations.

TAPPAN, Frederick D., an American banker, died in Lakewood, N. J., February 28, 1902. He was born in New York City, January 29, 1829, and was educated at the Columbia Grammar School and at the University of the City of New York, graduating from the latter in 1849. In the year following he became a clerk in the National Bank of New York, reorganized in 1865 as the Gallatin National Bank, rose in 1867 to be cashier, and in 1868 succeeded James Gallatin as president. His services to the New York Clearing House, which began in 1869, when he became a member of its conference committee, were manifold and constant. He was often a member and five times chairman of the clearing house committee, which is concerned chiefly with situations involving the possibilities of panic, was twice chairman of the conference committee, which superintends the general course of clearing-house operation, and was four times president of the Clearing House Association. His connection with banking interests lasted through a period of fifty years, and since 1873, when as chairman of the clearing house committee, he exerted a personal influence in all the emergencies that arose, his profound insight into financial and economic questions made him a dominant factor in the history and development of New York, and thus of American, banking.

TASMANIA, an island 80 miles south of Australia, forming one of the states of the Commonwealth of Australia, has an area of 26,385 square miles and a population (1901) of 172,475, an increase of 17 per cent. since 1891. Hobart, the capital, has a population of 34,682.

Government and Finance.—The executive power is exercised by a governor appointed by the crown (Sir Arthur Elibank Havelock, appointed 1902), assisted by a responsible ministry of 5 members. The legislative power is vested in a parliament consisting of a legislative council and assembly, both elected. The state revenue decreased from £1,054,980 in 1901 to £826,163 in 1902, and the expenditure from £923,731 to £870,442. The decrease in revenue was due to the shortage in tariff receipts, owing to the commonwealth tariff arrangements. The state debt in 1902 was £9,095,735.

Industries, Commerce, etc.—The chief agricultural products are wheat, oats, hay, and potatoes. Of more importance than agriculture are the mineral, timber, and live-stock industries. The exports of the principal minerals in 1901 were as follows: Copper, £1,026,748; silver, £325,335; tin, £212,542; and gold, £204,164. Imports and exports in the fiscal year 1901 amounted to £2,073,657 and £2,610,617 respectively; for 1902, £1,969,199 and £2,945,757. There were 618 miles of railway open for traffic in 1902.

History.—The parliament opened on July 23, 1902, and in his opening address Governor Havelock said that the federal tariff and the loss of the postal revenue rendered necessary a reduction in expenditures and an increase in direct taxation. The proposed parliamentary measures included a constitutional reform bill, a local government bill, and a bill for the revision of the liquor laws. The constitutional reform bill, it was later stated, proposed the consolidation of the two houses of the legislature, the new body to consist of 30 members, 10 of whom should be chosen on the senate franchise and 20 on the assembly franchise.

TAXATION. The United States Industrial Commission recommended in their final report (1902): (1) "That the States abandon the general property tax and realize their revenues by taxes upon corporations, inheritances and incomes, supplemented when necessary by indirect taxation.

(2) "That corporations, public service or other, be taxed by State boards at rates fixed by legislation, upon the value of their franchises, assessed according to the actual value of their stocks and bonded debts, and that the real estate owned by them be taxed locally, as other real estate is taxed.

(3) "That the system of levying graduated taxes upon inheritances be adopted by those States which do not now employ it, and that it be abandoned by the federal government.

(4) "That taxes upon corporations, inheritances, etc., be supplemented by a graduated tax upon incomes, to be levied and collected by the State.

(5) "That notes, mortgages, and other like property, be taxed by the State at

full value but at low fixed rates, through appropriate listing and recording systems similar to the Pennsylvania method. . . . Such taxes and other revenues of the State in excess of their needs should be distributed to counties or localities upon some equitable basis.

(6) "That to promote greater uniformity in State taxation and to consider interstate problems . . . the States provide for national conventions of fiscal officers.

(7) "That the general property tax upon real estate and tangible personalty be supplemented by special taxes or licenses upon any business that is not by the general property tax made to bear its just share of the local public burden."

The taxation department of the National Civic Federation has made strong efforts to carry these recommendations into effect. At the national conference on taxation, held under its auspices at Buffalo, May 23-24, 1902, resolutions were adopted looking toward uniformity in taxation among the States, and the exemption of paper evidences of ownership or interest. Bulletin No. 1, issued by the department says: "The taxation department has secured the aid of a committee appointed by the 'State Boards of Commissioners for Promoting Uniformity of Legislation in the United States,' and it is intended at as early a date as possible to draft uniform laws on the several subjects of taxation, to be recommended to the State legislatures."

The widespread interest in taxation reform is attested by the fact that in three States constitutional amendments were proposed in 1902 conferring larger discretion on the legislature in the matter of taxation. The Ohio amendment gives the legislature a free field, except that public buildings, buildings devoted to public charity, and houses used exclusively for public worship, shall not be taxed, and personal property to the amount of $200 shall be exempted. The Colorado amendments give the people of each county the right to decide every four years whether personal property and improvements on land shall be exempt from taxation, and limit the rate of the State tax to four mills. Franchises are excepted from both these provisions and may be taxed not more than six mills. The Minnesota amendments provide: (1) Special assessments by municipal authorities for local improvements; (2) annual tax upon franchises in addition to the tax on the real property and other personal property of the owner of the franchise; or, in lieu of this tax, a tax upon the gross earnings of the person or corporation holding such franchise may be imposed; the receipts accruing from this tax shall be apportioned between the State, counties and municipalities where the franchise is exercised, in the same manner as the revenues from real estate are apportioned; (3) an inheritance tax not to exceed 5 per cent. may be imposed on the estates of decedents above a fixed sum, which tax may be uniform, graded, or progressive; (4) a registry tax on real estate mortgages, a tax on the income from all credits, and also on the income from personal property; (5) an income tax on all incomes above $1000 per annum, not otherwise taxed and not arising from property otherwise taxed. This tax may be graded or progressive or both and may not exceed 10 per cent. on credits and income from personal property, or 4 per cent. on other income. The usual exemptions are made, and the tax on gross earnings of railroads is retained.

In New York, Governor Odell worked toward the repeal of the franchise tax law, the taxation of corporations upon gross receipts, and the substitution of indirect taxation for the direct property tax. The governor's attitude was severely criticized by all except the holders of valuable franchises. Through the influence of the corporations, it is said, the Ford franchise tax bill was so amended as to provide that the assessment of franchises should be the duty of the State tax commissioners; but the corporations promptly refused to pay the taxes assessed in this manner, on the ground that it was unconstitutional. The appellate division of the State Supreme Court for the third department upheld their contention. Comptroller Grout said the decision did not affect the principle of the law. The case is to be carried to the Court of Appeals, and if necessary to the United States Supreme Court. Strong objection was made against the abolition of direct taxes in favor of indirect taxes. The latter, it is true, usually excite less opposition from the people, because the burdens and the evil effects are more or less obscured; but a "campaign of education" was begun looking toward a more rational reform than that proposed by the governor. It is coming to be generally recognized by tax reformers that there are two sources of injustice in taxation: (1) The escape from taxation of the beneficiaries of franchises; and (2) the escape from taxation of the beneficiaries of social increment of value, who do nothing and pay nothing for what they receive. The fallacy of attempting to tax mortgages and other intangible personalty has been amply demonstrated. Michigan and Wisconsin have tried to assess all intangible property. The increase of assessments was almost entirely in mortgages, with the result that interest on farm loans was raised from 1 to 1½ per cent.—an amount much in excess of the tax rate. Indiana set out to assess bank deposits. These amounted to more than $100,000,000, of which hardly

$1,000,000 had ever been assessed. The assessors succeeded in getting most of the deposits, but the year 1901 found deposits greatly decreased, many millions having been withdrawn to other States. In Ohio the courts have ruled that railroads and municipal service corporations cannot be assessed on their franchises, the assessment being restricted to tangible property. The legislature in 1902 enacted two laws, the "Willis law," imposing an "excise tax" of one-tenth of 1 per cent. on the capital stock of domestic and foreign corporations employed in the State; and the "Cole law," imposing an "excise tax" of 1 per cent. on the gross revenues of public service corporations. Chicago, St. Paul, and New York City instituted reforms in assessments in 1902. The valuation of personal property was increased from $21,000,000 to $88,000,000 in Chicago by means of its board of review and the committees of citizens, who rate the business houses according to the volume of business done, regardless of the schedules filled out by each. St. Paul employed a scientific method of assessing buildings, according to the materials, the finish and age of each. By these means great inequalities of former assessments were discovered and corrected. In New York the assessment of property at its full valuation was instituted by Mayor Low. Heretofore assessments ranged from 7½ per cent. to 130 per cent. of full value. Assessment at full value was adopted for two reasons: (1) To equalize taxation, and (2) to increase the borrowing capacity of the city, since the State constitution limits the possible debts of the city to 10 per cent. of the assessed value of real estate. As a result the real estate valuation for 1903 was increased $1,425,452,387, the figures for 1902 being $3,330,647,579, and for 1903, $4,756,099,966. The average increase is 40 per cent., that for Brooklyn is 27 per cent., while that for Manhattan is 48 per cent. Vacant lots were in some instances raised more than threefold. The assessment of personal property in New York City was increased from $3,482,475,802 in 1902 to $4,420,326,945 in 1903, an increase of 27 per cent. This increase has little meaning, however, for most of the personal assessment is "sworn off." In 1902 the personal property assessment of $3,004,869,916 was reduced by this process to $412,388,258, a reduction of 87 per cent.

TAYLOR, William, an American clergyman of the Methodist Episcopal church, missionary-bishop for Africa of that denomination, died at Palo Alto, Cal., on May 18, 1902. He was born in Rockbridge County, Va., May 2, 1821, and after early experience as a farmer and tanner, in 1842 entered the ministry of the Methodist Episcopal Church. In the gold days of 1849-56 he was active in missionary duty in California, and for the five years succeeding continued his ministry in Canada and the New England States. He went out in 1862 as an evangelist to Australia, Africa, Asia, and South America. During his work in India (1872-76), and the South American countries, he established numerous self-supporting churches, and in his visit to South Africa he was very successful among the Kaffirs. In May, 1884, he was elected missionary-bishop for Africa; and on the Congo and at other points he established flourishing missions. It is said that his missionary travels included every English-speaking country of the globe. His published volumes are the personal records, *Seven Years' Street Preaching in San Francisco* (1856), *Christian Adventures in South Africa* (1867), and *The Story of My Life*, and the studies, *Ten Years of Self-Supporting Missions in India* (1882), and *Pauline Methods of Missionary Work* (1889).

TEACHERS COLLEGE. See Columbia University.

TELEGRAPHY, Wireless. See Wireless Telegraphy.

TEMPLE, Frederick, ninety-fourth archbishop of Canterbury, died December 23, 1902, in London. He was born November 30, 1821, at Leukas, on Santa Maura, one of the Ionian Islands, graduated at Balliol College, Oxford, in 1842, with a double first class, and was ordained in 1846. After tutoring in mathematics at Balliol College, where he had secured a fellowship in 1848, he became principal of Kneller Hall, near Twickenham, in 1855 inspector of schools, and in 1858 head master of Rugby, where he did much to revive the prestige the school had enjoyed under Thomas Arnold. In 1860 he acquired a reputation for a tendency toward rationalism, owing to the appearance of his name as one of the authors of the famous *Essays and Reviews*, which caused a storm of theological controversy at the time. It has since been admitted that Dr. Temple's own contribution to the volume, an essay on "Education and the World," contained little that would nowadays be considered dangerous, and probably it was more the company in which he found himself that gave him a name for heterodoxy. But so strong was the impression made by the incident that when in 1869 he was nominated by Gladstone (whose Irish Church disestablishment measure he had supported) as bishop of Exeter, a loud outcry was made against the appointment which found expression even in a public and formal protest at the time of the confirmation of the election. His subsequent career, however, as bishop and archbishop, showed the groundlessness of these suspicions. Inflexibly just, he favored no one party in the Church,

but in many points his later teaching and practice commended him rather to the High Church school than to the Broad churchmen, among whom he had been thought to stand. In 1869 he became bishop of Exeter, was Bampton lecturer at Oxford in 1884, and in 1885 was transferred to the diocese of London. In 1896 he was consecrated archbishop of Canterbury. Two of the most widely important events of his primacy were the decision in the case of the bishop of Lincoln, who was brought to trial for alleged ritual irregularities, and the learned and dignified reply which in 1897 (in conjunction with his brother primate, archbishop of York) he made to the Papal declaration of the invalidity of Anglican orders. Among his last official acts, performed when failing in strength, were the coronation of Edward VII., and a speech on the education bill before the House of Lords. He published *Sermons Preached at Rugby; The Relation Between Science and Religion* (the Bampton lectures); and *Tracts and Pamphlets.* He was a man of unflagging zeal and earnestness, and especially active in movements for the welfare of the working classes and for temperance.

TEMPLE, Rt. Hon. Sir RICHARD, first baronet, a British authority on Indian affairs, died in London, March 17, 1902. He was born at Kempsey, England, in 1826, was educated at Rugby and the East India Company's College, Haileybury, and entered the civil service in Bengal in 1846 as secretary to Sir John Lawrence. His period of service in India extended from that year until 1880 and included several important offices. He first became chief commissioner of the Central Provinces and political resident of Hyderabad, and from 1868 to 1874 was foreign secretary to the governor-general and finance minister of India. During the famine in the latter year he was in charge of the measures for relief for Bengal. He was appointed lieutenant-governor of Bengal in 1875, and in 1877 governor of Bombay. In 1885, five years after his return to England, he was elected to the House of Commons, of which he was a member for ten years. In 1876 a baronetcy was conferred upon him. He wrote the following books: *India in 1880; Men and Events of My Time in India* (1882); *Oriental Experience* (1883); *Cosmopolitan Essays* (1886); *Palestine Illustrated* (1888); *The Story of My Life* (1896); *Sixty Years of the Queen's Reign* (1897); *A Bird's Eye View of Picturesque India* (1898). He held the degrees of D.C.L. and LL.D., the former from Oxford and the latter from Cambridge and Montreal.

TENNESSEE, a central southern State of the United States, has an area of 42,050 square miles. The capital is Nashville. Tennessee was admitted as a State on June 1, 1796. The population in 1900 was 2,020,616, and in June, 1902, as estimated by the government actuary, 2,073,000. The populations of the four largest cities in 1900 were: Memphis, 102,320; Nashville, 80,865; Knoxville, 32,637; and Chattanooga, 30,154.

Finance.—There was on hand in the treasury of the State of Tennessee on December 20, 1901, $222,614.45. The total receipts for the fiscal year amounted to $2,755,513.70, and the expenditures to $2,555,570.55, leaving a balance on hand on December 19, 1902, of $422,557.60. The main items of revenue and the amounts derived therefrom were: County trustees, $1,148,832.60; county court clerks, $454,526; circuit court clerks, $40,526.89; insurance fees, $161,238.92; railroad taxes, $200,360.13; state penitentiary, $532,406.02. The total debt at the end of the year was $16,021,466, of which $675,166 was unfunded. The debt was reduced during the year by the amount of $504,787.67, 10 per cent. of the gross revenues of the State being paid monthly into a sinking fund for the retirement of the bonds.

Agriculture and Industries.—The principal farm crops of Tennessee for 1902, according to the *Crop Reporter,* were: Corn, 3,337,047 acres, 73,081,329 bushels, $34,384,225; winter wheat, 840,381 acres, 6,050,743 bushels, $4,598,565; oats, 186,071 acres, 3,219,028 bushels, $1,351,992; potatoes, 26,405 acres, 1,637,110 bushels, $1,047,-750; hay, 357,049 acres, 514,151 tons, $6,066,982; tobacco, 59,830 acres, 38,889,500 pounds, $3,888,950.

While nearly all the other cotton States in 1902 had crops 10 to 15 per cent. below the average, the Tennessee yield was 10 per cent. above the ten-year average. The census bureau reported that on December 13 the 815 cotton gins in operation had ginned 272,135 bales, and it was estimated that 34,409 bales remained in the hands of the growers. These figures show a total crop of 306,544 bales, worth approximately $13,800,000. The mines in the eastern part of the State underwent considerable development. The production of pig-iron increased from 337,139 tons in 1901 to 392,778 tons in 1902. Shipments of phosphate increased from 409,650 tons in 1901 to 437,500 tons in 1902. The principal development in the textile industry was in and about Nashville. In 1902 two knitting and four cotton mills were constructed. The latter had an equipment of 30,500 spindles and 700 looms.

Conventions and Platforms.—The Democratic national convention was held at Nashville on May 29. The Kansas City platform and the attitude of Democratic

members of Congress were indorsed; then followed declarations denouncing trusts; favoring tariff for revenue only; condemning the ship subsidy bill, and the Republican position on the Philippines; and favoring the speedy restoration of peace in the East, and the granting of independence to the Filipinos. The platform declared against the increased standing army, denounced Republican extravagance, favored the construction of the Nicaragua Canal, expressed sympathy for the Boers, and favored liberal commercial relations with Cuba. The convention also indorsed the Democratic State administration and approved the passage of the measure providing for the liquidation and retirement of the State funded debt; it favored State legislation to equalize tax burdens, and urged the adoption of a law requiring the union label on State printing, and the enactment of laws to improve the public roads of the State.

The Republican national convention was held at Nashville on June 18. The platform favored legal restraint of monopolies, denounced the attacks on American soldiers in the Philippines, and extended thanks to Senator Lodge of Massachusetts for defending the army in the Senate. The reform of the State Election law was called for, including the adoption of the Australian ballot system.

Elections.—At the regular biennial State election, held November 4, 1902, the Democratic candidates for governor, treasurer, comptroller, and railroad commissioners were elected. The vote for governor was Frazer (Dem.), 98,954; Campbell (Rep.), 59,002, giving Frazer a plurality of 39,952. The result was affected by the unfortunate feud in connection with the murder of Governor Goebel. The Anti-Saloon League, which was an important factor in the State legislative campaign, was successful beyond all expectations, the house of representatives going overwhelmingly its way, while in the senate the League gained a small majority. The State legislature for 1903 will consist of 28 Democrats and 5 Republicans in the senate, and 83 Democrats and 16 Republicans in the house.

State Officers.—For 1902: Governor, Benton McMillin; secretary of state, John W. Morton; treasurer, R. E. Folk; commissioner of agriculture, Thomas H. Paine; superintendent of public instruction, M. C. Fitzpatrick (elected to Congress); comptroller, Theodore F. King; attorney-general, Charles T. Cates, Jr.—all Democrats. For 1903: Governor, James B. Frazer, elected for two years, term ending January, 1905; secretary of state, John W. Morton, until February, 1905, term 4 years; treasurer and insurance commissioner, R. E. Folk, February 1903, term 2 years, re-elected for 2 years; commissioner of agriculture, Thomas H. Paine, June, 1901, term 2 years; superintendent of public instruction, to be appointed; comptroller, Theo. F. King, February, 1903, term 2 years, re-elected for 2 years; attorney-general, Charles T. Cates, Jr., August, 1903; railroad commissioners, John N. McKenzie, Thomas L. Williams, N. P. Baptist, chairman—all Democrats.

Supreme Court: Elected in August, 1902, to hold office for eight years: Chief justice, W. D. Beard; associate justices, John S. Wilkes, W. K. McAlister, M. M. Neil, and John K. Shields—all Democrats.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

TENNYSON, second Baron, HALLAM TENNYSON, second son of the late Alfred, Lord Tennyson, was appointed governor-general of the Australian Commonwealth in 1902, shortly after the resignation of the Earl of Hopetoun under circumstances which attracted some attention to the expense of maintaining that office. In default of a capital of the new commonwealth, and until an official residence shall be built, the governor-general is asked to reside part of the time at Melbourne and part at Sydney. But while the Australians required this, they were not willing to increase the governor's salary of £10,000, and Lord Hopetoun resigned because of insufficient official funds to keep up two establishments. Some arrangement is understood to have been made by which his successor, Lord Tennyson, will be saved undue expense in this respect. The latter was born August 11, 1852, was educated at Marlborough College and at Trinity College, Cambridge, and succeeded to his father's title in 1892. His *Memoir* (1897) of his father was remarkably well received and manifested considerable literary ability. The poetic gift, however, he has not inherited, but he has done well in the administrative offices to which he has been called. He was appointed governor of South Australia in 1899, and occupied that position until promoted to be governor-general. See AUSTRALIA, COMMONWEALTH OF.

TEXAS, a southwestern State of the United States, has an area of 265,780 square miles. The capital is Austin. Texas was admitted to the Union December 29, 1845. The population in 1900 was 3,048,710, and in June, 1902, as estimated by the government actuary, 3,229,000. The populations of the three largest cities in 1900 were: San Antonio, 53,321; Houston, 44,633; Dallas, 42,638.

Finance.—The cash balance in the treasury of the State of Texas on September 1, 1901, was $2,579,419.21. Cash receipts during the fiscal year, including transfers,

amounted to $9,021,822.22, and cash disbursements, including transfers, $9,400,417.58, leaving a balance on September 1, 1902, of $2,200,823.85. The main items of revenue and the amounts derived therefrom were: General revenue, $3,371,209.75; available school fund, $3,636,891.55; permanent school fund, $1,780,193.42. The total bonded debt of Texas on September 1, 1902, was $3,989,400, of which nearly the entire amount was held by the school and charitable funds. The assets of these funds at the end of the year, including cash, bonds, and leased land, amounted to $45,071,876.36, of which $40,283,330.84 was held by the permanent school fund.

Agriculture and Industries.—The principal field crops of Texas for 1902, according to the *Crop Reporter,* were: Corn, 5,539,187 acres, 44,867,415 bushels, $29,612,494; winter wheat, 959,253 acres; 8,633,277 bushels, $6,647,623; oats, 896,869 acres, 20,807,361 bushels, $10,195,607; potatoes, 26,704 acres, 1,762,464 bushels, $1,498,094; hay, 424,718 acres, 594,605 tons, $5,113,603; rice, 200,000 acres, 2,000,000 bags, $15,000,000.

With the exception of rice, fruit and vegetables, Texas crops were poor in 1902. The census bureau reported 2,167,472 bales of cotton ginned by December 13, and estimated that 188,968 bales remained yet in the hands of the planters, showing a crop of 2,356,440 bales, or about 20 per cent. less than the 1901 crop. The value of the crop was estimated at $106,000,000. Texas was the only State showing a decrease from the 1901 cotton crop. This was due to hot, dry weather in August, and more especially to boll-weevils. Special agents of the United States Department of Agriculture estimated that $10,000,000 damage was done in 1902 by the boll weevils.

Texas holds first rank in horse and cattle raising, the farm animals in the State, January 1, 1903, comprising 1,291,458 horses, valued at $38,901,293; 407,161 mules, $20,861,205; 813,852 milch cows, $18,116,346; 8,007,910 other cattle, $109,698,754; 1,736,603 sheep, $3,541,803; and 2,312,315 swine, $10,174,186. The drought in early summer compelled Texas cattle-owners to ship to the northwest for pasturage. Before July 10, the Colorado and Southern Railroad had carried 4003 carloads of cattle from Texas to points near Denver. The Beaumont oil field, which suddenly increased Texas's production of petroleum from 800,000 barrels in 1900 to 4,393,660 barrels in 1901, continued to develop. The yield in 1902 was estimated at about 25,000,000 barrels. A number of very productive wells were struck at Sour Lake and Saratoga. Some wells that had been good producers were abandoned on account of salt water. Shipments from the Spindle Top field were, in 1901, 1,501,968 barrels, and in 1902, 11,506,482 barrels. Three knitting mills and three cotton mills were built in Texas in 1902, the latter containing 12,492 spindles and 160 looms. At the end of 1902 there were 16 rice mills in the State, as against 5 in 1900. A number of cottonseed-oil mills were built. At the end of 1902 they numbered 150, representing a capital of $10,000,000. The railroad mileage, exclusive of yard tracks and siding, was, in December, 1902, 10,884 miles. The railroad commissioner reports that the average freight rate per ton mile was, in 1899, 10.73 mills; in 1902, 9.58 mills. About 479 miles of track were built during 1902.

Constitutional Amendment.—At the November election, an amendment to the State constitution, making the payment of a poll tax of $1.50 on or before February 1 of each year a qualification for suffrage, was voted upon and carried. About nine-tenths of the negroes will be disfranchised by this provision. Two-thirds of the amount collected from this tax is to be set apart for the public free school fund, and the remaining third will be credited to the general revenue fund. The Republican convention, under white control, failed to respond favorably to the request of the negroes that this poll tax should be opposed, and the subject was not mentioned in the platform. The offensive and aggressive attitude of the negroes, who vote much and pay little in taxes, led to the adoption of the amendment. The demand of the negro Republicans that a negro representative be placed in nomination for some minor State office on the Republican ticket, was denied them by the white Republicans. The only nominations made by the Republican convention were for the offices of governor and treasurer, both nominees being white men.

Conventions and Platforms.—The Democratic State convention was held at Austin on July 17. The platform reaffirmed the principles embodied in the Kansas City platform, declaring the belief of the party in Texas that, with Democratic success in 1904, "the dangers of imperialism, centralization, trusts, monopolies, mergers, and other combines hurtful to our people, unjust taxation and kindred evils would not longer confront our country." Trusts were condemned and the isthmian canal project was approved. In State matters the administration of Governor Sayers was approved; the employment of short-term convicts in the improvement of the public roads and upon the farms was urged, also the re-enactment of uniform textbook laws, and the provision of textile schools as a department of industrial education in the Agricultural and Mechanical College. The passage of a law prohibiting the employment of children under twelve years of age in factories

using machinery was asked for, and a demand was made for uniform election primaries, also the abolition of passes on railroads.

The Republican State convention was held at Fort Worth on September 11. In the platform, the President and the administration were strongly endorsed. The establishment of a port of entry adjacent to the Beaumont oil field was asked for, also national and State aid for the protection of the rivers and valleys of the State from overflows.

The Populist State convention was held at Fort Worth on August 12. The platform emphasized the necessity for adoption of the initiative and referendum as the only method by which the people can express themselves fully and freely on political questions. This convention adopted the name "Allied Populist Party."

Elections.—At the regular biennial State election, held November 4, 1902, a full Democratic State ticket was elected. The vote for governor was Lanham (Dem.), 218,959; Burkitt (Rep.), 56,678, giving Lanham a plurality of 162,281. The legislature for 1903 will consist of 31 Democrats in the senate and 129 Democrats, 1 Republican, and 1 Populist in the house.

State Officers.—For 1902: Governor, Joseph D. Sayers; lieutenant-governor, J. N. Browning; secretary of state, J. G. Tod; treasurer, John W. Robbins; comptroller, R. M. Love; superintendent of public instruction, Arthur Lefevre; commissioner of agriculture, Charles Rogan; attorney-general, C. K. Bell; railroad commissioners, John H. Reagan, L. J. Storey, Allison Mayfield—all Democrats. For 1903: Governor, S. W. T. Lanham (elected for 2 years, term ending January, 1905); lieutenant-governor, G. D. Neal; secretary of state, J. R. Curl; treasurer, J. W. Robbins; comptroller, R. M. Love; superintendent of public instruction, Arthur Lefevre; commissioner of agriculture, W. C. Clay; attorney-general, C. K. Bell; railroad commissioners, O. B. Colquitt, L. J. Storey, Allison Mayfield—all Democrats.

Supreme Court in 1902 and 1903: Chief justice, R. R. Gaines; associate justices, T. J. Brown and F. A. Williams.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives). See GALVESTON SEA WALL.

TEXAS, UNIVERSITY OF, Austin, Tex., founded 1883, had in 1902 about 1300 students and a faculty of 109 members. The gross income for the year was $275,303, with gifts amounting to $5000. The law course was extended to three years, and provision was made for new departments in electricity and mechanical engineering. It was decided by the university authorities to give no degrees after 1906, except that of Bachelor of Arts, thus making the former degrees of Bachelor of Literature and Bachelor of Science equivalent to the customary degree in arts. The library contained 40,000 volumes.

THAYER, JAMES BRADLEY, an American educator and author, died at Cambridge, Mass., February 14, 1902. He was born at Haverhill, Mass., January 15, 1831, and after preparing himself for college entered Harvard University, from which he graduated in 1852. He completed the law courses in 1856, after having supported himself throughout his entire college career, and began the practice of his profession in Boston as a partner of William J. Hubbard, whom he succeeded as a master in chancery in 1864. His wide reputation led to his appointment in December, 1873, to the Royall professorship of law in Harvard University, the duties of which he fulfilled from 1874 until 1893, when he was made Weld professor. In 1891 he received from the Iowa State University the degree of LL.D., which was granted also by Harvard three years later. A place on the Philippine commission was offered him in 1900 by President McKinley, but was not accepted. He contributed widely to newspapers and magazines, edited the twelfth edition of Kent's *Commentaries*, and published *Letters of Chauncey Wright* (1878); *A Western Journey with Mr. Emerson* (1884); *Memorandum of the Legal Effect of Opinions Given by Judges to the Executive and Legislature Under Certain American Constitutions* (1885); *The Teaching of English Law in Universities* (1892); *Cases on Evidence* (1892); *The Origin and Scope of the American Doctrine of Constitutional Law* (1893); *Cases on Constitutional Law* (1895); *The Development of Trial by Jury* (1896); *A Preliminary Treatise on Evidence at the Common Law* (1898).

THIBET, a country of central Asia, nominally a division of the Chinese Empire, but practically under the rule of the lamas, or Buddhist priests. The capital is Lhasa, a city that hitherto has been virtually inaccessible to foreigners. The estimated area is 651,500 square miles, and the estimated population 6,000,000. In 1901 and 1902 Russia was suspected of scheming to extend her influence over Thibet, and in the summer of the latter year it was alleged that a treaty between the two countries had been concluded. Little substantiating evidence, however, was forthcoming.

An expedition, sent out by the Russian Geographical Society and led by Capt.

P. K. Kozloff, that since 1899 had explored Thibet and the desert of Gobi, besides other parts of Mongolia, returned to St. Petersburg in January, 1902. Much important work was accomplished by the expedition, which numbered 38 men, including several scientists. Surveys aggregating about 8000 miles were made, the positions of 40 localities were determined astronomically, daily meteorological observations were taken, and there were collected a large number of geological, botanical, and zoological specimens. The explorers also obtained valuable historical and ethnographical information. In eastern Tsaidam, northeastern Thibet, a meteorological station was organized by four members of the expedition, who remained there and for many months recorded observations that afford a good basis for calculating altitudes in the country.

THOMPSON, Rt. Rev. Hugh Miller, Protestant Episcopal bishop of Mississippi, died November 18, 1902, in New York City. He was born June 5, 1830, in Londonderry, Ireland, and when a child was brought to the United States. He received his theological degree in 1852 at the Nashotah Theological Seminary, Wisconsin, and, after serving in several churches in Wisconsin and Illinois, he was elected professor of church history in that institution. At the same time he became editor of the *American Churchman,* a position which he held until the paper was incorporated with the *Churchman* in 1870, when he undertook the editorship of the *Church Journal* and the *Gospel Mission,* and became rector at St. James's, Chicago. He was rector at Christ Church, New York, from 1871 to 1875 and at Trinity, New Orleans, from 1876 to 1883. In 1883 he was consecrated assistant bishop of Mississippi and became bishop four years later. He wrote several books, but his missionary work left him little time for writing during the last ten years. Among his works are: *Unity and Restoration; Kingdom of God; The World and the Logos; The World and the Wrestlers.*

TIELE, Cornelis Petrus, a Dutch theologian and historian, died January 11, 1902. He was born in Leyden, Holland, December 16, 1830; studied theology in Amsterdam, held pastorates in Mordrecht (1853), and Rotterdam (1856), was a lecturer in Rotterdam from 1856 to 1872, and in 1877 was called to the chair of history of religion in the University of Leyden. He wrote the important article "Religions" for the *Encyclopædia Britannica,* and was accounted the greatest European authority on the comparative history of religion. Among his publications, which include valuable works on the history of Christianity, and various other historical studies, and which have been translated into many languages, are: *De godsdienst van Zarathustra* (1864); *Vergelijkende geschiedenis der Egyptische en Mesopotamische godsdiensten* (1869-72); *Geschiedenis van den godsdienst tot aan de heerschappij der wereldgodsdiensten* (1876), better known under the title of its German translation, *Kompendium der Religionsgeschichte* (1887); and *Babylonisch-assyrische Geschichte* (1886-87).

TIFFANY, Charles Lewis, an American merchant, died in New York City, February 18, 1902. He was born in Killingly, Conn., February 15, 1812; and, after an elementary education in the district school and in the Plainfield Academy, started in business in his native village. In 1837 he went to New York City, and in partnership with John B. Young established the stationery and fancy goods store which, after many changes, resolved into the well-known jewelry firm of Tiffany and Company. In time many European branches of the firm were established, the importation of historic gems and other famous works of art was successfully undertaken, and the uniform excellence of the firm's productions did much to inspire continental respect for the United States as the home of artistic workmanship. The sterling silver standard of .925 fine, which was introduced by the Tiffany company in 1851, was accepted by other leading silversmiths until it became the standard throughout the country. Mr. Tiffany was created a chevalier of the French Legion of Honor in 1878, and was frequently honored by the rulers of other European nations.

TIN. Deposits of tin ore (cassiterite) were worked during 1902 in the York region of Seward Peninsula, Alaska. The locality is on the Arctic slope of the peninsula, near a range of hills, and about eight miles east by north from Cape Prince of Wales. The tin occurs along the bed-rock of small streams which rise in the highlands, its source being referred to veins in slate. While the richest deposits carry about 8 pounds of ore per cubic yard, the remoteness and conditions of climate are such serious obstacles to development that no important supplies of tin may be expected from this region. The imports of tin into the United States in 1902 were 42,522 short tons, valued at $21,263,337.

TISSOT, James Joseph Jacques, a French painter and engraver, died August 9, 1902. He was born at Nantes, October 15, 1836; studied at the Ecole des Beaux Arts, and first exhibited at the Salon in 1859. Water colors, etchings, and a smaller number of pictures in oil by him were thereafter to be seen at the annual exposi-

tions. He obtained a medal at the Salon of 1866, and a gold medal at the Exposition Universelle of 1889. In 1886 he sailed for the East to begin topographical and historical studies introductory to his best-known achievement, a series of water colors illustrating the life of Christ. This important undertaking he completed in 1896. He went, he says, "as a devout pilgrim"; his aim was to show in their exact appearance and proportions the places associated with the Gospel, in regard to which he believed the world had been deceived by the fancies of mediæval painters and their subsequent imitators. "I have only desired," his words are, "to give a personal interpretation, based upon serious study, and intended to dispel as much as possible an inaccurate and vague view from people's minds." The entire collection of 350 water colors and 112 pen and ink drawings, after wide exhibition in the United States, was acquired for the sum of $60,000 by the Brooklyn Institute of Arts and Sciences and hung in the gallery of that institution. Elaborate color prints, prepared under the supervision of the author, and with an accompanying text, appeared as a *Life of Our Lord Jesus Christ*. Other works by the artist are: "Promenade in the Snow" (1859); "Confidants" (1867); "The Retreat in the Garden of the Tuileries" (1868); "The Departure," "In Distant Lands," "The Return," "The Fat Sheep" (all 1883), and "On the Thames."

TISZA, Koloman, an eminent Hungarian statesman, died at Budapest, March 21, 1902. He was born at Grosswardein December 16, 1830, a member of the noble Protestant family of Borosjeno. He studied law and entered the civil service in the department of education, but on the outbreak of the revolution in 1848 resigned, and although ill-health prevented his active participation in the revolutionary movement he warmly sympathized with it. After a brief period of foreign travel and study he returned and occupied himself with the management of the family estates at Geszt, where he took an active part in local affairs. In 1859 he attracted wide attention by his opposition to Count Thun's attempt to regulate Protestant communions in Hungary. In 1861 he was elected to the Képviselöház, or lower house of the Hungarian parliament, where he at once attained prominence as the leader of the group of moderate Liberals, who were opposed to the party of Deák. After the compact of 1867 (with Austria) had been arranged, Tisza and his followers refused at first to accept it, contending that the only connection between Austria and Hungary should be the personal one of the sovereign. After the withdrawal of Deák and Andressy left the old Deák party without a strong leader, it rapidly became disorganized, and in 1874, through administrative mismanagement, was compelled to relinquish its power. A coalition ministry was then formed under Baron Wenckheim, in which both Deák's and Tisza's followers were represented, and Tisza himself, the controlling spirit, held the portfolio of the interior. Eight months later, on Wenckheim's retirement, Tisza, on October 17, 1875, became premier. From that time until his resignation, March 12, 1890, he was the real ruler of Hungary, and with a strong and unified Liberal party behind him, was able to reorganize and solidify the Hungarian administration in such a manner as to increase constantly the Magyar power and influence in the dual monarchy. Twice, in 1877 and 1887, he negotiated a renewal of the *Ausgleich*, each time securing better terms for Hungary. He placed the finances of the kingdom on a sound basis, reorganized the local governments in the direction of a more highly centralized system, secured complete free trade between the two halves of the monarchy, and did much to promote the internal prosperity of the kingdom, particularly in the development of the state railways. The election of 1887 gave him an apparently indefinite lease of power, but some disparaging remarks about Kossuth led to violent scenes in parliament, culminating in an adverse vote which brought about his resignation on March 12, 1890. He continued an active and influential member of the lower house until his death, representing Grosswardein until 1901 when, being defeated by a Kossuthist, he was returned from Transylvania.

TOBACCO. The tobacco crop of 1902, taken as a whole, was an unusually large one, and the amount of cigar leaf tobacco raised is announced as the largest ever reported. All of the ten principal tobacco-growing States except Pennsylvania report average yields per acre in excess of their ten-year averages. In nearly all sections the crops were unusually sound and clean. The most unfavorable feature of the season was the cool, cloudy weather of late summer, which retarded the maturity of the crops. In the Chemung Valley of New York, and Pennsylvania, the excessive rains injured many fields and reduced the number of acres harvested. Wisconsin led all other States this year in the production of cigar leaf tobacco, and the crop in Ohio was fine. The amount of tobacco carried over from last year was reduced very low, so that the demand for every crop of tobacco possessing merit is excellent and higher prices have prevailed than for years.

The production of tobacco of all kinds, as reported by the United States Department of Agriculture, was 821,823,963 pounds, valued at $80,472,506. This crop was

grown on 1,030,734 acres, the average yield per acre being 797.3 pounds. Kentucky produced the largest amount, 257,755,200 pounds, North Carolina 142,520,950 pounds, Virginia 136,769,250 pounds, Wisconsin 64,885,480 pounds, and Ohio 55,709,865 pounds. The production of cigar leaf tobacco, as estimated by the *American Agriculturist*, was as follows (cases of 350 pounds each): Wisconsin 179,500 cases, Ohio 128,600, Pennsylvania 92,000, New England States 83,000, New York 22,000, and Southern States 13,900, a total of 519,000 cases, as compared with 346,983 in 1901 and 420,303 in 1899.

The growth of Sumatra tobacco under cloth shade, which has been experimented upon for two years in Connecticut was undertaken on a commercial scale last year, about 700 acres being raised by 35 growers. The average yield of barn-cured product was about 1200 pounds an acre, and the quality was quite equal to that grown previously on the experimental plats. It is thought that the price will average fully $1 a pound. Small tracts were grown under cloth in New York, Pennsylvania, Ohio and Wisconsin, in an experimental way; and considerable quantities were raised in Georgia and Florida, where its culture in this country first started. In the latter States, lath shade has been largely substituted for cloth. In Georgia, where the drought injured the crop the past year, irrigation was tried with such success that it is said many irrigation plants will be put in for the coming season. As indicating the economy of the Sumatra leaf for cigar wrappers, the Connecticut experiment station found that a pound and a quarter of the leaf would wrap 1000 cigars, whereas at least nine pounds of broad-leaf grown in the open was required to wrap that number. Shading makes the leaf much thinner, and more elastic.

The home consumption of cigar-leaf tobacco for cigars and cigarettes continues to show an enormous increase, as does the manufacture of smoking and chewing tobaccos and snuff. The report of the commissioner of internal revenue, as summarized by *Tobacco Leaf*, shows that the following amounts of cigars, cigarettes, etc., were produced during the calendar year:

	1902	1901
Cigars (number)	6,483,963,497	5,919,322,142
Little cigars (number)	707,288,497	749,629,383
Cigarettes (number)	2,745,705,171	2,403,327,985
Manufactured tobacco (pounds)	313,858,361	292,250,380
Snuff (pounds)	18,406,377	17,121,241

A feature of the tobacco business has been the steady increase in the manufacture of cigars since 1897, and the decline in cigarettes. In 1897, about four and one-half billion of each were made. The number of cigarettes decreased steadily up to last year. This is partly due to the growth in favor of the little cigars. The amount of tobacco used for cigar making increased from 78,736,071 pounds in 1897 to 116,388,262 pounds in 1901. The internal revenue receipts from taxes on tobacco for the fiscal year ended June 30, 1902, amounted to $51,718,258.45.

During the fiscal year ended June 30, 1902, there were imported from Cuba 18,892,782 pounds of wrapper and filler tobacco, valued at $8,578,297, from the Netherlands 5,527,789 pounds, valued at $4,835,699, and from Turkey (European and Asiatic combined), 3,186,852 pounds, valued at $1,176,723. The total importation of filler and other tobacco (not including manufactures) during the fiscal year was 29,428,837 pounds, valued at $15,211,671.

The exports of tobacco during the calendar year, as summarized by *Tobacco Leaf* from returns of the Treasury Department, were as follows:

EXPORTS OF DOMESTIC AND FOREIGN TOBACCOS AND THEIR PRODUCTS, 1902.

Domestic Tobacco.	Amount.	Value.	Foreign Tobacco.‡	Amount.	Value.
Leaf *	353,317,395	$34,393,294	Leaf suitable for wrappers *	1,076,679	$788,328
Stems and trimmings *	10,751,955	247,221	Other *	2,042,286	791,810
Total *	364,069,340	$34,640,515	Total *	3,118,965	$1,580,138
Cigars †	1,667	$33,780			
Cigarettes †	1,285,692	2,099,888	Cigars, cigarettes and cheroots †	14,664	$30,714
Plug and all other		3,389,566	All other		4,812
Total		$5,523,234	Total		$35,526

* Pounds. † Thousands. ‡ Passed the custom house in transit.

The value of the exports of domestic leaf and manufactured tobacco was therefore $40,163,749, and of the foreign $1,615,664; as compared with $32,238,321 and $1,334,771, respectively, in 1901. These exports went mainly to the United Kingdom, Germany, France, Italy, Netherlands, Belgium, and Canada.

The tobacco imports, taken from the same source, were as follows:

IMPORTS OF TOBACCO, 1901 AND 1902.

	1902		1901	
	Amount.	Value.	Amount.	Value.
Leaf suitable for wrappers (pounds)..	5,650,420	$4,674,431	6,259,994	$5,831,954
All other (pounds).....	26,541,812	11,546,985	21,757,556	10,358,572
Total leaf (pounds).....	32,192,214	$16,221,416	28,017,550	$16,190,526
Cigars, cigarettes and cheroots (M) ...	479,046	$2,616,531	475,666	$2,504,287
All other.....	.....	78,101	.....	85,616
Total.....	.....	$2,694,632	.....	$2,589,903

TOBAGO. See TRINIDAD.

TOGOLAND, a German protectorate in West Africa between the Gold Coast and Dahomey, has an estimated area of 33,000 square miles, and an estimated population of 2,500,000. It is administered by an imperial commissioner, stationed at Lome. For the fiscal year 1903 the estimated revenue (including an imperial contribution of 1,015,000 marks) and expenditure balanced at 1,650,000 marks. (The mark is worth 23.8 cents.) Commerce is expanding. In 1896 imports and exports amounted to 1,886,840 marks and 1,231,250 marks, respectively; in 1900, 3,516,786 marks and 3,058,903 marks; in 1901, 4,722,900 and 3,689,550. The leading imports are cotton goods and alcoholic liquors. The chief exports in 1900 and 1901 were valued in marks as follows: Palm kernels, 1,422,340 and 1,798,370; palm oil, 1,015,024 and 1,474,740; rubber, 521,372 and 260,613. Attempts are being made to develop cotton culture. It was announced in the spring of 1902 that the construction of a wharf at Lome would soon be begun. At that time construction had begun on a coast-line railway from Lome to Seguro and Little Popo.

TONQUIN, the northernmost division of the French colony of Indo-China (*q.v.*) lies on the Gulf of Tonquin, between China on the north, and Anam (of which it was formerly a dependency) on the south. The area is estimated at 119,660 square miles, and the population at between 7,000,000 and 12,000,000. The seat of the government is Hanoï, with 150,000 inhabitants. Tonquin was formerly a vice-royalty of Anam, but since 1897 the administration has been in the hands of a French resident. The local budget balanced in 1901 at 4,197,950 piastres. The chief crop is rice, mostly exported to Hong Kong. Silk, the production of which reaches 500,000 kilogrammes annually, sugar-cane, cotton, coffee, tobacco and fruits are also produced for export. Copper, coal and iron are mined. The imports in 1900 were valued at 63,800,000 francs (28,500,000 francs from France and French colonies) and the exports at 40,025,000 francs (4,225,000 francs to France and French colonies). For railway construction, see INDO-CHINA.

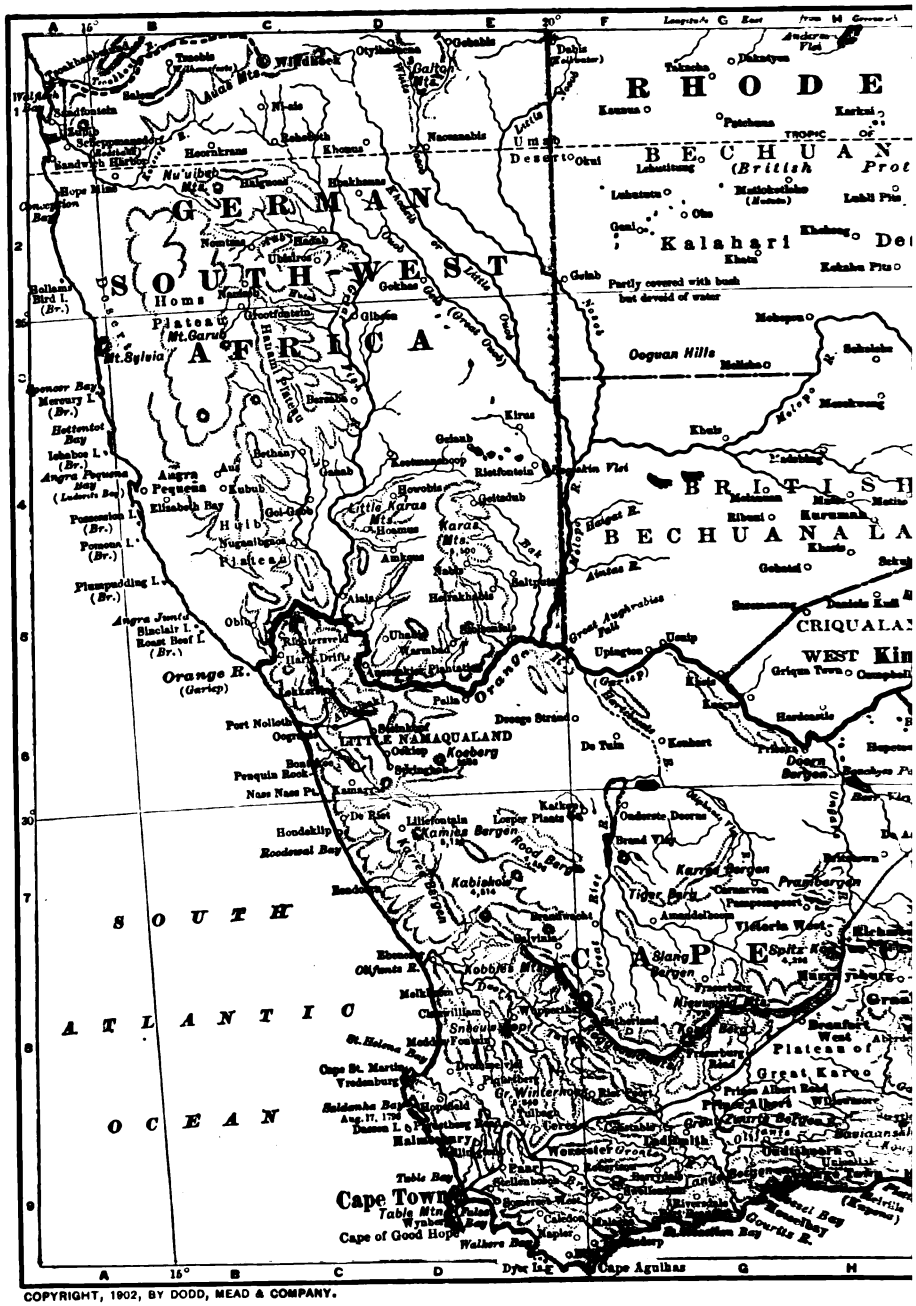
TRACY, HARRY, a criminal, while serving a sentence of twenty years for assault and robbery dating from 1899, escaped from the penitentiary at Salem, Ore., after killing three guards and wounding a fourth. Leaving his prison on the morning of June 9, 1902, in company with a confederate, Merrill, whom he soon murdered from fear of betrayal, Tracy began the most desperate fight for liberty that is recorded in the criminal annals of America. For two months he wandered back and forth through Oregon and Washington, forcing the inhabitants to provide food, clothing, shelter, and transportation. As he passed from one county into another, a new sheriff with a large posse renewed the chase, but, though several times surrounded, Tracy either fought his way to safety or eluded his pursuers by clever tactics, and it was not until August 5 that he was forced to die by his own hand to prevent capture alive.

TRADE UNIONS. There are several labor organizations in the United States which are independent of the American Federation of Labor (see FEDERATION OF LABOR, AMERICAN), and at least two organizations that profess a rivalry or open antagonism to that organization. The American Labor Union is a socialistic body, composed of the Western Miners' Union and some smaller associations which split off from the American Federation of Labor, in 1902. (See SOCIALISM.) It advocates the radical Social Democratic platform, and has a strength variously estimated from 20,000 to 160,000. It is too early to judge what will be the result of this new movement. As yet the only apparent effect has been to weaken and disturb the larger labor organization. The Knights of Labor has existed since 1878 and was at one time the most powerful labor organization in the country; but with the advent of the American Federation of Labor, with its sounder principles of association, the Knights of Labor has dwindled in numbers and influence. It now claims a membership of 200,000. The officers are: General master workman, John W.

Hays; general worthy foreman, I. H. Sanderson; general secretary-treasurer, I. D. Chamberlain, Washington, D. C. In addition to these organizations there are several independent labor unions, the most important of which are: Brotherhood of Locomotive Firemen, president W. F. Arnold, Peoria, Ill.; Brotherhood of Railroad Trainmen, president A. E. King, Cleveland, O.; Order of Railroad Conductors, president W. J. Maxwell, Cedar Rapids, Ia.; Brotherhood of Locomotive Engineers, president C. H. Salmons, Cleveland, O.; Brotherhood of Railroad Switchmen, president M. R. Welsh, Buffalo, N. Y.; Stone Cutters' Association, president J. F. McHugh, Washington, D. C.; Bricklayers and Masons, president William Dobson, North Adams, Mass.; Brotherhood of Operative Plasterers, president T. A. Scully, Indianapolis, Ind.; National Association of Letter Carriers, president E. J. Cantwell, Washington, D. C.; Postoffice Clerks, president Charles Dvorak, Chicago, Ill.; Stone Masons' International Union, president John Reichwein, Indianapolis, Ind.

A significant event was the visit of the English labor union representatives to America. See GREAT BRITAIN (paragraph Mosely Commission).

The labor unions of America were much wrought up over the Taff-Vale decision in England, and sent numerous expressions of sympathy to their brethren across the water. They seem to have overlooked a decision by the New York courts involving the same principle of responsibility for damages. It was held by the court that incorporated trade unions can be sued under the code of civil procedure through actions brought against their officials, and the property of the association bound by the judgment given. The principle here laid down makes compulsory incorporation unnecessary. If followed out it will have exactly the same effect here as the Taff-Vale decision in England. This interpretation may, no doubt, work hardship in some cases, and if passed will be most violently combated by the unionists; but the general principle that there can be no power without responsibility will scarcely be abrogated in favor of labor organizations. The *Report* on Trade Unions in the United Kingdom for 1901 was issued in November, 1902. It shows a membership at the end of 1901 of nearly 2,000,000. The 100 principal unions have a membership of 1,161,226 and a reserve fund of £4,161,916, or £3 11s. 8¼d. per man. The unions grew in numbers but slightly during that year, owing to the general depression in industry, and the growing unpopularity of trade union methods. Morally the unions have hardly held their own during 1902, for trade unionism is blamed for the crippling of English industry, and the opposition has been stronger and more aggressive than ever before. The Taff-Vale decision and the cases arising under it have permanently weakened English trade unionism, a wound that must prove mortal unless the unions can find some new way of coercing non-union labor and employers without laying themselves liable to damage. The Taff-Vale case, decided in 1901 by the House of Lords, involved directly only the right of a court to enjoin a union from a certain form of picketing, but the decision that the union could be made a party to a suit carried with it the doctrine that the funds of such an association were liable to attachment in a verdict for damages. In a case decided in the latter part of December, 1902, the officers of the Amalgamated Society of Railway Servants were found guilty of maintaining a system of picketing and terrorism to bring about a strike and prevent the employment of non-union men, and were held responsible for damages to the railway company to the amount of £27,000. Labor unions everywhere are much excited by these decisions. The Webbs declare that they strike at the very life of trade unionism. Efforts are being made to induce Parliament to reassert the old doctrine that a trade union cannot sue or be sued, but there seems to be no prospect of carrying such a measure through. There can be no doubt that the labor unions have greatly hampered industry in Great Britain. They adhere rigidly to the "ca' canny" system; they limit output, reject improved machinery, and rigidly prescribe the number of apprentices. British manufacturers constantly complain of strikes and disturbances to industry. Cost of building was increased 15 per cent., mainly because of restrictions upon output and lessening the hours of labor. A glass manufacturer reports that the output per man has decreased 25 per cent. in a dozen years. The labor unionists hold that there is only a certain amount of work to be done, and that by limiting hours and output more workmen will be employed, and so a more general distribution be effected. The manufacturers assert that the application of these ideas is sending industry out of the country and putting England behind Germany and America. Compulsory arbitration is violently opposed by the trade unions; the vote "by card"—that is, by the number of members represented by each delegate voting—for the last three years shows a growing opposition to it. In 1900 the vote was 246,000 for, 939,000 against; in 1901 it was 366,000 for, 676,000 against; in 1902 it was 303,000 for, 961,000 against. The chief ground for the hostility to official settlement of labor disputes on the part of the unions is the fear that arbitration courts will be unfavorable to the cause of labor. The fourth trade union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CRIQUALA
WEST
CAPE
SOUTH
ATLANTIC
OCEAN
Walfisch Bay
Windhoek
Auas Mts.
Sandwich Harbor
Conception Bay
Hope Mine
Nu'uibeb Mts.
Homs Plateau
Mt. Garub
Mt. Sylvia
Spencer Bay
Mercury I. (Br.)
Hottentot Bay
Ichaboe I. (Br.)
Angra Pequena
Elizabeth Bay
Possession I. (Br.)
Pomona I. (Br.)
Plumpudding I. (Br.)
Sinclair I.
Roast Beef I. (Br.)
Orange R. (Gariep)
Bethany
Hulb Plateau
Little Karas Mts.
Karas Mts.
Keetmanshoop
Gibeon
Umsab Desert
Oogvan Hills
Partly covered with bush but devoid of water
Kuruman
Upington
Prieska
Port Nolloth
LITTLE NAMAQUALAND
Springbok
Kamies Bergen
Hondeklip
Roodewal Bay
Kobbies Mts.
Olifants R.
St. Helena Bay
Cape St. Martin
Saldanha Bay
Dassen I.
Table Bay
Cape Town
Table Mtn.
Cape of Good Hope
False Bay
Walkers Bay
Dyer I.
Cape Agulhas
Mossel Bay
Gourits R.
Karree Bergen
Victoria West
Nieuwveld Mts.
Beaufort West
Great Karoo
Zwartebergen
Worcester
Paarl
Stellenbosch
Caledon
Swellendam
Oudtshoorn
Prince Albert
Carnarvon
Calvinia
Clanwilliam
Ceres
Tulbagh
Malmesbury
Sneeuwkop
Longitude G East from H Greenwich
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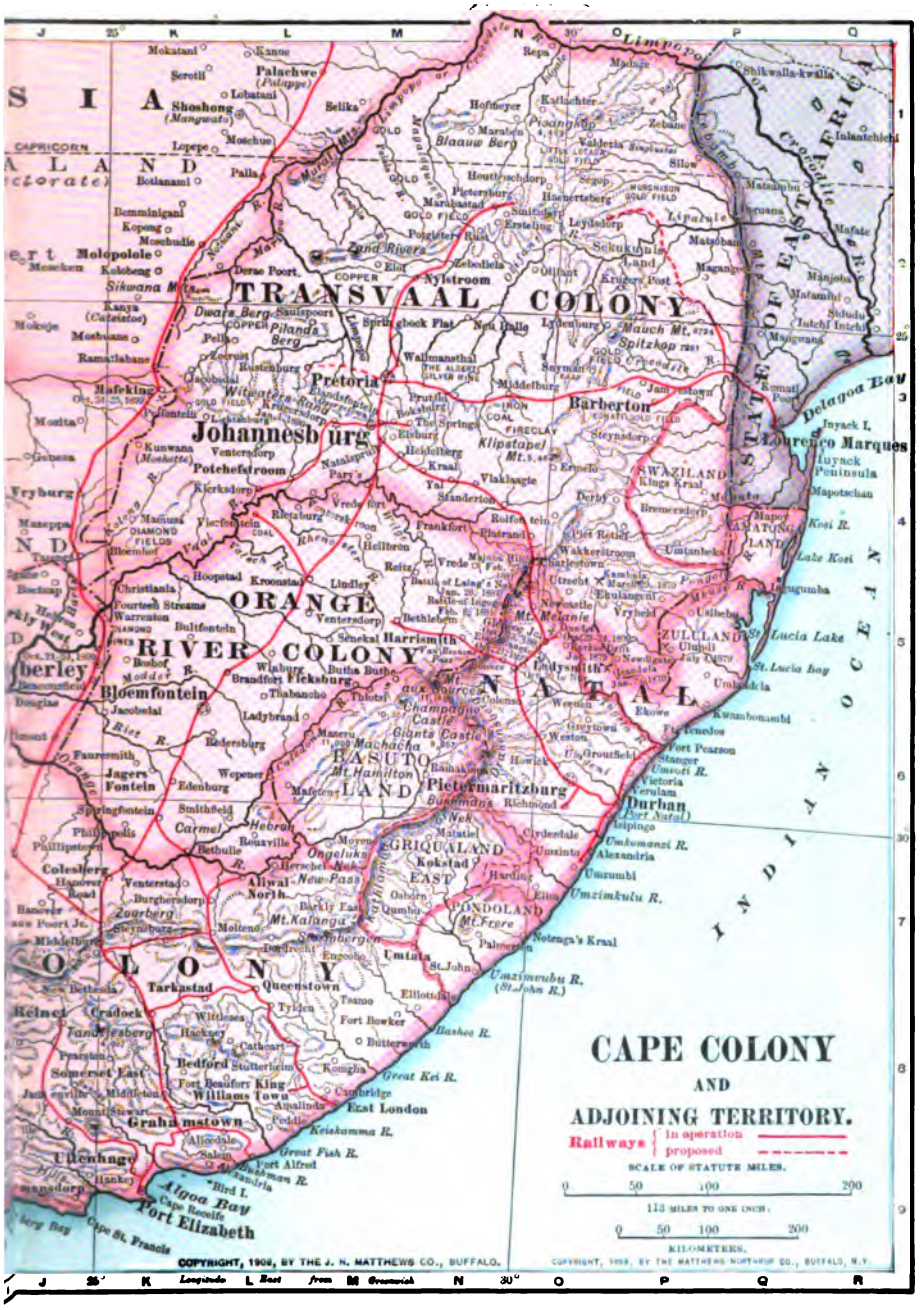


CAPE COLONY
AND
ADJOINING TERRITORY.

congress of Germany was held in September, 1902. For the first time the imperial government felt compelled to send representatives other than policemen to the meetings. Fifty-eight central bodies having a membership of 691,118 were represented by 150 delegates. A report on organization among women laborers showed a membership of 23,699 for women's unions. In 1892 there were but 4355 women in unions. According to the industrial report for 1895, there were 822,176 women employed in shops and factories in Germany. The congress asked that prison labor be limited to the least possible competition with free labor. A report on laborers' protective insurance declared it to be the duty of the state to guarantee support to the laborer during scarcity of work. This should not be called poor relief or be attended by loss of political rights. A resolution was passed declaring that only trade union men should be supported thus. An important move was the establishment of a fund for the organization of labor unions and founding a sick fund. Accordingly a monthly tax will be collected, to be administered by the trade union officials, for the care of invalids, widows, and orphans.

TRANSVAAL, formerly the South African Republic, became a colony of the British crown by proclamation September 1, 1900. It occupies a plateau in the interior of South Africa between the Vaal and Limpopo rivers. The area is 119,139 square miles and the population, both native and white, according to an estimate of 1898, was 1,094,156, of whom 245,397 were whites. The largest towns are Johannesburg, population (1899) 105,000, and Pretoria, the capital, population (1899) 12,500. The white inhabitants are largely adherents of the United Dutch Reformed (formerly the state church) and other Dutch and English Protestant denominations. In 1897 there were 11,552 pupils enrolled in the public schools.

Government, Finance and Industries.—The British colonial administration, which superseded that of the old South African Republic, has not yet been wholly organized, owing to the necessity of maintaining military rule in a great part of the region during the continuation of hostilities. The lord high commissioner for South Africa (Lord Milner) is the titular governor, and is represented in the colony by a lieutenant-governor (Sir Arthur Lawley). When civil government is completely restored the governor will be assisted by an executive council and an elected legislative council. Representative municipal and local government will be established, the old Boer laws and customs being respected as far as possible, and a new system of law courts established. In 1897 the republic's revenues were £4,480,218, the expenditures £4,394,066 and the debt (1898) £2,675,690. Estimates for 1902-03 placed the revenue at £4,000,000, and the expenditure at £3,702,765—figures which if reasonably correct show that the effect of the war on the industrial life of the country was not so severe as was generally supposed. The imports in 1897 were valued at £13,563,827. For the first ten months of 1902 the value of the imports was stated to be £9,241,131. The chief exports are gold, wool, hides, cattle and ostrich feathers. Stock raising and mining are the principal industries. Agriculture is still very little developed, but its possibilities are great. Gold, the most important mineral product, was mined to the value of £16,044,135 in 1898. During 1902 the gold mines were gradually reopened. Coal (in 1898 1,907,805 tons), diamonds (valued, 1898, at £43,730), copper, silver, iron and lead are also mined. The length of railway lines open in 1898 was 774 miles, with 270 miles under construction and 252 projected.

HISTORY.

Military Operations.—The year opened with the military situation of the preceding months practically unchanged. It was estimated that about 10,000 Boers were still in the field, while the total strength of the British army in South Africa was 237,800 officers and men. The Boer forces were broken up into small bands, and their operations consisted chiefly in the prosecution of guerilla warfare. De Wet in particular distinguished himself in this sort of fighting, and his achievements will rank among the most brilliant of the sort in history. Skirmishes, ambuscades, and sudden attacks, rather than large campaigns and battles, characterized the final stages of the struggle. The steady extension of the block-house system and the practice of harrying the Boer forces materially reduced their numbers and resources, though not without several important losses to the British. An incident of the operations in January was the execution by the British authorities of Commandant Scheepers, who was captured in October, 1901, tried by court-martial and found guilty of offenses against the usages of war. De Wet's unusual activity led in February to a determined effort to surround and capture him, near the north boundary of the Orange River Colony, but he succeeded in escaping on a dark night by rushing the line with a herd of cattle in front, with a loss of two or three hundred men. A cleverly managed "drive" on the 27th of February resulted in the killing or capturing of over 800 Boers, with large numbers of horses, cattle, arms, etc. Early in March the British suffered a reverse at Klerksdorp from an attack by General Delarey, their loss in killed, wounded and captured being 632 men and five guns. A greater

disaster was sustained on March 7, when General Lord Methuen, with 900 mounted troops and 300 infantry with 4 guns and a pom-pom, marching from Vryburg to Lichtenburg, was attacked by General Delarey with 1500 Boers. The British forces were assailed on three sides, 500 of their number being chased a distance of four miles. Four pieces of British artillery with all their supplies and a large number of prisoners including General Methuen were captured. Owing, however, to the Boer custom of liberating prisoners, General Methuen soon obtained his release. The capture of the second senior British officer and the rout of the British forces was the last military achievement of note in the war. Minor incidents which marked the closing stages of the struggle were: The capture by General French of Commandant Kritzinger in Cape Colony; the formation of several corps of Boer volunteers for service on the British side under the name of "National Scouts"; a serious railway accident at Barberton, resulting in the death of 40 men and severe injuries to 40 more; the execution of a number of Australian officers in the British service for murdering Boer prisoners; and successful "drives" against the Boers, resulting in the capture of a number of prisoners.

Peace Negotiations.—As stated in the article on Great Britain (*q.v.*) the British government refused the offer of mediation proposed by the Netherlands on January 25, on the ground that it could not accept the intervention of any foreign power in the settlement of the differences with the Boers. It contended, moreover, that the Boer delegates in Europe had no authority to treat, as all powers of government were vested in Mr. Steyn and Mr. Schalk-Burger, and therefore the "quickest and most satisfactory means of arranging a settlement would be a direct communication from the leaders of the Boer forces to the British military authorities." It was accordingly decided that all peace negotiations must take place not in Europe but in South Africa. Mr. Schalk-Burger at once informed Lord Kitchener that he was prepared to offer proposals for peace, and on March 22 he, with other members of the "acting Transvaal government," had a conference with Lord Kitchener at Pretoria. As a result of this conference they obtained a safe conduct and departed for Kroonstadt to consult with General De Wet, Mr. Steyn and other "irreconcilables" of the former Orange Free State. A more general conference of Boer leaders was held at Klerksdorp April 9, after which they all proceeded to Pretoria, where terms of peace were prepared acknowledging the independence of the two republics. These terms the British government promptly declined to consider and informed the Boer leaders that unless a more serious proposal was made, no further communications from them would be received. The British negotiators were then asked to state the terms they were willing to grant, the Boer negotiators promising to submit them to the burghers. The British authorities thereupon proposed the terms substantially offered in the previous year (see paragraph on Terms of Peace), and Lord Kitchener undertook to see that the burghers had an opportunity to meet and discuss the terms proposed. Safe conducts and passes were granted as requested, and on May 16 some 60 Boer delegates were assembled at Vereeniging to deliberate on the British proposals. A special commission of five was appointed to wait upon Lords Milner and Kitchener at Pretoria to obtain better terms, including self-government under certain restrictions, but their efforts were without avail. The Boers agreed to surrender part of their territory and give up the right of managing their foreign relations in return for limited self-government, but this was refused. Finally articles of peace were agreed upon, laid before the delegates and accepted by a vote of 54 to 6. The articles of peace were formally signed by the negotiators at Pretoria, May 30.

Terms of Peace.—The following were the terms of peace agreed upon by Lords Kitchener and Milner on behalf of the British government, and by Messrs. Steyn, Brebner, De Wet, Olivier and Hertzog for the Orange Free State; and Messrs. Schalk-Burger, Reitz, Botha, Delarey, Meyer and Krogh acting for the South African Republic:

(1) The burghers to lay down their arms, to hand over all their guns and ammunition and to desist from further resistance to the authority of King Edward VII., whom they shall recognize as their lawful sovereign.

(2) All burghers in the field outside the limits of the Transvaal or Orange River Colony and all prisoners of war at present outside South Africa who are burghers and who shall declare their acceptance of the position of subjects of Edward VII. to be gradually brought back to their homes as soon as transports can be provided and means of subsistence insured.

(3) The burghers so surrendering or returning are not to be deprived of their personal liberty or property.

(4) No proceedings, civil or criminal, are to be taken against any of the burghers for any acts in connection with the prosecution of the war, but the benefits of this clause are not to extend to certain acts contrary to the usages of war.

(5) The Dutch language is to be taught in the public schools of the Transvaal and Orange River Colony where the parents of the children desire it, and is to be allowed in the courts of law when necessary for the better and more effectual administration of justice.

(6) The possession of rifles is to be allowed in the Transvaal and Orange River Colony to persons requiring them for their protection on taking out a license according to law.

(7) Military administration in the Transvaal and Orange River Colony is at the earliest possible date to be succeeded by civil government, and, as soon as circumstances permit, representative institutions leading up to self-government will be introduced.

(8) The question of granting the electoral franchise to natives will not be decided until after the introduction of self-government.

(9) No special tax to be imposed on landed property to defray the expenses of the war.

(10) As soon as local conditions permit a commission on which the inhabitants will be represented will be appointed in each district for the purpose of assisting the restoration of the people to their homes, and supplying those who, owing to the losses of the war, are unable to provide themselves with food, shelter and the necessary amount of seed stock, implements, etc., indispensable to the resumption of their normal occupations.

The British government further agreed to place at the disposal of the above mentioned commission the sum of £3,000,000 for the purposes mentioned. In addition to the free grant of £3,000,000 the government announced its willingness to make loans for the same purposes free of interest for a period of two years and afterwards repayable over a period of years with 3 per cent. interest.

In agreeing to these terms the British government announced that the punishment of the British subjects in Cape Colony and Natal who joined the Boers in the war should be left to the respective governments concerned and in accordance with their own laws. It was announced at the same time that the Cape government had decided that the rank and file of such persons who should sign a document acknowledging themselves guilty of high treason should be punished by disfranchisement, provided they were not guilty of murder or other acts contrary to the usages of civilized warfare. Certain classes holding official positions or certain military rank are to be tried for high treason, but in no case is the death penalty to be inflicted. The Natal government made the general announcement that rebels subject to her jurisdiction should be dealt with according to the law of the colony. On November 6 Parliament in pursuance of the terms of surrender voted a grant of £8,000,000 to aid the Transvaal and Orange River Colonies for the ensuing year. Of this amount £3,000,000 was appropriated for the aid of the burghers, £2,000,000 to British sufferers from the war, and £3,000,000 for loans as provided in the terms of the surrender.

The End of the War.—After the acceptance of the above terms Lord Kitchener visited the Boer camp at Vereeniging and in a public address congratulated the Boers on the splendid showing which they had made in the unequal struggle. He welcomed them as subjects of the British Empire and asked for their cooperation in restoring harmony and promoting the welfare of the country. Arrangements were then made for the formal surrender of Boer armies. Generals Kitchener, Hamilton and Eliot were appointed commissioners to receive the arms of those surrendering. Under the direction of the Boer leaders the men came in promptly and gave up their arms. The total number who surrendered was over 21,000. Those who were supplied with transportation and rations returned at once to their farms with their wives and children. Others were permitted to remain within the British lines until provision could be made for their transportation. The king telegraphed his congratulations to Lord Kitchener on the ability which he had displayed throughout the war and in the settlement of the issues involved and raised him to the rank of general. Special thanksgiving services in commemoration of the peace were held in a number of towns and cities in South Africa as well as elsewhere, and a solemn commemorative service attended by the royal family was held at St. Paul's Cathedral, June 8. In a farewell address to the troops before leaving South Africa, Lord Kitchener expressed his thanks to the officers and men for their services during the war and at the same time referred to the soldierly qualities and the admirable spirit displayed by their enemies throughout the struggle and in carrying out the terms of the surrender. Appreciation of the services of those Boers who served in the English ranks was also expressed.

Expenditures, Enlistments and Casualties.—A parliamentary statement issued in April estimated the cost of the war, including interest on the war debt, as follows.

Year.	Amount.	Year.	Amount.
1899-1900	£23,217,000	1902-1903	£63,600,000
1900-1901	65,120,000		
1901-1902	71,037,000	Total	£222,974,000

A revision of the budget in May reduced the estimate of the total cost to £206,224,000. Of this amount more than £140,000,000 was raised by loan.

A statement of the war department issued in September gave the following particulars with reference to British troops engaged in the war:

Garrison in South Africa, August 1, 1899		9,940	From India—		
From Great Britain—			Regulars	18,229	
Regulars	228,171		Volunteers	305	
Militia	45,566				18,534
Yeomanry	35,520		From Colonies—		
Scottish Horse	833		Colonial contingents	29,090	
Volunteers	19,856		South African Constabulary (Canada)	1,238	
South African Constabulary	7,273				30,328
		337,219	Raised in South Africa		52,414
			Total troops engaged		448,435

The colonial contingents and contributions were distributed as follows:

Colony.	Number of Men.	Expenditure.	Colony.	Number of Men.	Expenditure.
Canada	8,400	£620,000	West Australia	1,165	£51,646
New South Wales	6,208	391,620	Tasmania	796	38,393
Victoria	3,897	138,327	New Zealand	6,000	334,000
Queensland	2,903	203,164			
South Australia	1,494	82,068	Total	30,863	£1,859,218

A war office report in June placed the casualties as follows:

	Officers.	Non-commissioned Officers and Men.
Killed in action	518	5,256
Died of wounds	183	1,535
Died in captivity	5	97
Died of disease	339	12,911
Accidental deaths	27	771
Total	1,072	20,570
Missing		103
Sent home as invalids	3,116	72,314
Total casualties South African field force	4,188	93,289
	97,477	

With regard to the Boer expenditures, enlistments and casualties no reliable statistics are available. According to estimates made by the Red Cross Society the total Boer enlistments from first to last did not exceed 75,000, while the total losses during the war were 3700 killed or died of wounds and 32,000 prisoners.

Boer Generals in Europe.—On August 16 Generals Botha, Delarey, and De Wet arrived in England and soon after were received by Mr. Chamberlain and later by the king on board the *Victoria and Albert.* On August 23 they sent a communication from Brussels, where they had gone to attend the funeral of Gen. Lucas Meyer, to Mr. Chamberlain asking for an interview for the purpose of discussing certain questions relating to conditions in South Africa. Among the questions proposed for discussion were: Amnesty; annual grants for widows, orphans, and disabled burghers; use of Dutch language in schools and law courts, and compensation for loss and confiscation of property.

Mr. Chamberlain replied, expressing surprise at these proposals and insisted that the generosity of the terms granted was unparalleled in history. Most of the proposals, he said, constituted a suggestion for a new agreement, and he had no power to reopen the points already settled. The Boers responded by saying that they had accepted the terms of peace as an ultimatum for the purpose of avoiding the further effusion of blood and that they desired to procure just treatment for themselves and for those who cast in their lot with them. Mr. Chamberlain thereupon asked for and received formal assurances that if an interview was accorded no subject inconsistent with the settlement reached in the terms of surrender would

be raised. The interview was accordingly granted and took place at the colonial office September 5 in the presence of General Kitchener and various officials of state. With regard to the various points raised in the course of the interview, Mr. Chamberlain insisted that the policy of the British government was as liberal and just as could be permitted. He explained that the question of amnesty for the excepted classes was being disposed of by a royal commission; agreed that the composition of the commission to distribute the £3,000,000 should include men of practical experience; expressed the opinion that the government could not undertake to do more for the widows and orphans; and promised that martial law should soon be put an end to. On September 23 the Boer generals issued a manifesto in the shape of an appeal to the civilized world recalling the struggles in South Africa, reciting the refusal of Great Britain to grant further assistance and calling for outside aid for the destitute and in the education of the children. The appeal continued: "Our people are completely ruined. It has been impossible to make a complete inventory, but we are convinced that at least 30,000 houses on Boer farms and many villages were burned or destroyed by the British during the war. Everything was destroyed and the country was completely laid waste. The war demanded many victims, the land was bathed in tears and our orphans and widows were abandoned." On November 6 Mr. Chamberlain wrote to General Botha, characterizing the appeal as conveying an incorrect and exaggerated impression of the circumstances to which it referred and saying that the promise of the government to assist them by way of loans on easy terms still held good. Furthermore, he said, the government had already expended over £3,000,000 on the burgher camps and was still expending £200,000 annually for that purpose, with the result that the lives of thousands of women and children had been saved, and intimated that large sums had been transmitted from the Transvaal during the war to Europe in the interests of the republic and he could not doubt that a large balance remained which would be used for the relief of the burghers and their families. Large sums, he said, had been spent by the government for the support and education of the children and large sums were being spent to refurnish the country with live stock and farming implements.

Other Events of the Year.—On June 21 Lord Milner assumed office as governor of the Transvaal, the formal ceremony taking place in the council chamber at Pretoria. In July a lieutenant-governor was appointed. The names of members of the executive council were announced at the same time. A supreme court and inferior courts were established. In October the customs tariff was revised by reducing the duties on agricultural implements, certain machinery and building materials. By an ordinance of November 19 martial law was abolished in the Transvaal and various special regulations for the public safety were substituted. At the same time it was announced that the concentration camps would be continued for six months longer. With regard to educational measures it was announced that a maximum of five hours per week, where the parents desired it, should be allowed in the public schools for instruction in the Dutch language, Bible history and religion. The problem of repatriating and resettling the Boer prisoners was one of the first to claim the attention of the new government. For this purpose local commissioners were appointed in each district under a magistrate to supply them with the necessary food, shelter and farming implements. By September 25 23,944 persons had been returned to their farms, leaving about 29,000 still in the camps. By the middle of November all but 7600 had been repatriated, and by January 1, 1903, only the indigent and disabled prisoners in the camps at Irene, Pietersburg, Middleburg, Standerton and Potchefstroom were still unreturned. The £3,000,000 granted in pursuance of the treaty of peace was duly distributed on the basis of evidence furnished by local commissions. Burghers of good financial standing, although strictly coming within the terms of the treaty provision, were excluded from participation in the grant. Considerable difficulty was experienced in executing that part of the tenth article of the terms of surrender which provided that certain notes issued by the Boer government and all receipts given by officers in the field would be accepted as evidence of war losses suffered by the persons to whom they were originally issued. In pursuance of this provision a commission was appointed to pass upon the character of the said notes and receipts presented. The government was astonished to find that claims for £90,000,000 were filed under this head.

The work of economic restoration was begun early in the year by the reopening of a number of the mines, and in July provision was made for surveying three new railroad routes. With a view to the preservation of breeding-stock an ordinance was issued prohibiting for two years the slaughter of cows, heifers and calves in the Transvaal. The resumption of industrial pursuits was greatly hampered by the difficulty of obtaining laborers. In August only 38,000 natives were at work in the Rand as against 98,000 before the war broke out. It was estimated that from 70,000

to 80,000 laborers were needed at this time. The scarcity of labor did not affect the mines only but also the railways, public works and agriculture. White labor could be obtained only at prohibitory wages and besides it was unskilled. Lord Kitchener suggested the employment of disbanded volunteers, but on account of the strong prejudices against having white and black men work together, the suggestion was impracticable. Lord Harris advocated the importation of Chinese labor until the mines could be gotten into full operation, but, apart from the national opposition to Chinese labor, its employment as a temporary expedient would retard the eventual employment of the native population in the mines. Meanwhile resort was had to the employment of white labor—an experiment that is being watched with interest. So far as any judgment has been formed the experiment promises favorable results, and the conviction is growing that it is in this direction that the deficiency of native labor must be remedied.

An administrative measure of importance was the issue of a liquor ordinance to go in effect November 25 and providing for the application of local option or dispensary system. The employment of females, children under sixteen years of age and natives in bar rooms is prohibited. Provision is also made for liquor traffic inspection, and stringent restrictions are placed upon natives engaging in the liquor traffic. Side and back doors as well as screens are prohibited.

In September a royal commission of ten members was appointed to inquire into the military preparation for the war in South Africa, the supply of men, ammunition, equipment, transportation by sea and land in connection with the campaign and into the military operations up to the occupation of Pretoria. It held its first session in London on October 7 under the presidency of Lord Elgin.

TRINIDAD and TOBAGO, the two most southerly islands of the West Indies, constitute a British crown colony. Trinidad, lying a short distance off the Venezuelan coast, has an area of 1754 square miles and a population (1901) of 277,651. Tobago, with an area of 114 square miles, has a population of 18,751. The seat of the colonial government is at Port of Spain, Trinidad, which has a population of 55,000, and the finest harbor in the West Indies. There is a well-organized school system, supported partly by government grant, and two colleges. The government is vested in a governor (Sir C. A. Malony) and executive and legislative councils. The revenue in 1901 amounted to £712,394, and the expenditure £731,160. The public debt is £992,286, largely representing the railway and other public works. The trade and commerce of the colony is in a prosperous condition, and is the largest in the British West Indies. The imports in 1901 amounted to £2,651,600 and the exports to £2,445,651. The principal exports are sugar (45,254 tons), rum (178,151 gallons), molasses (482,762 gallons), bitters (32,614 gallons), and cocoa (30,154,768 pounds). The export of asphalt from the remarkable asphalt lake near La Brea, Trinidad, amounted, in 1901, to 144,000 tons, valued at £159,044. There are 89 miles of railway in operation, and more under construction.

TRIPLE ALLIANCE. Perhaps the most important event of European international politics during 1902 was the semi-official announcement made on June 28 that a convention prolonging the Triple Alliance for a period of seven years and without alteration in form had been signed in Berlin by the German chancellor, Count von Bülow, and by the Austro-Hungarian and Italian ambassadors, M. de Szägyény-Marich and Count Lanza di Busca. The Triple Alliance was originally concluded in 1882 and was renewed for a period of twelve years on May 6, 1891. It had its origin in the treaty between Germany and Austria concluded in 1879, the terms of which were subsequently published. This alliance was directed against Russia, whose Balkan policy was believed to be a menace to the European balance of power. The occupation of Tunis by France in 1881 and the isolation of Italy induced the latter power to join the alliance in 1882, the three powers agreeing to defend their possessions against the encroachments of France and Russia. In 1896 Roumania joined the alliance, which guaranteed her territorial integrity and the maintenance of the *status quo* on the Danube. In October, 1887, at a meeting between Bismarck and Crispi at Friedrichsruhe, a closer alliance in the form of an offensive and defensive league was concluded, it being understood that in the event of war between France and Germany, Italy would invade France with 200,000 men. The terms of the Triple Alliance, however, have never been published, and it is stated on good authority that Count von Bülow has once more requested the allies to maintain this secrecy, and that assurances in this respect have been exchanged. But it is well known that the provisions of the treaty are mainly defensive and relate to military matters in the event of war in which any of the parties is a participant. It is asserted that the renewed alliance is based on the original agreement which obligated each party to maintain a certain military strength, but Chancellor von Bülow publicly declared that "none of the parties to the alliance is obliged to maintain its military or naval forces at a prescribed

level," and that the alliance does not exclude the possibility of friendly relations between its partners and other powers. As a matter of fact, Italy and France had already reached a full and complete understanding in regard to their interests in the Mediterranean (see ITALY), and this *rapprochement* had been definitely and publicly announced. It was quite generally believed that this fact, together with the growing dissatisfaction of Italy with the commercial treaties between her and the allies, which were soon to expire (at the end of 1903), would influence her action in considering the question of renewal, and that she might decline to give her adherence to the pact. This, however, proved not to be the case, although Signor Prinetti, the Italian foreign minister, admitted that the *rapprochement* with France had deprived some of the considerations which originally induced the alliance, of much of their weight. Moreover, the increasingly cordial relations between Austria-Hungary and Russia in regard to the Balkans, and the difficulty of settling the question of the commercial treaties between Germany and Austria-Hungary, it was believed, would retard the adherence of the latter to the alliance. The demand of the Agrarians in the German Reichstag that the duties on imports be increased, it was well known, could only affect Austria-Hungary and Italy unfavorably. When the projected tariff law, therefore, was published, it was semi-officially announced that Austria-Hungary would refuse to conclude any treaties of commerce with Germany on such a basis, and if necessary would sacrifice the Triple Alliance. It was understood, however, that they received satisfactory assurances in regard to the renewal of the commercial treaties, and therefore consented to the renewal of the alliance. For the maintenance of a safe balance of power and in the interest of the general peace, the contracting governments were probably influenced in some degree by the reaffirmation of the Franco-Russian alliance, but in greater degree, doubtless, by the fact that there was nothing else to do; without the Triple Alliance the isolation of Germany would be practically complete and the antagonism between Italy and Austria-Hungary could hardly fail of being revived or the growing friendliness of Italy and France of being accelerated.

TRIPOLI, a vilayet of the Ottoman Empire, between Tunis and Egypt, has an estimated area, together with Benghazi, of 398,900 square miles and an estimated population of 1,300,000. Revenue and expenditure for the fiscal year 1901-02 are stated at £142,056 and £170,424, respectively. Imports and exports in 1900 were valued at £499,500 and £418,500, respectively; in 1901, £364,000 and £326,500, respectively. The leading exports are esparto grass, tanned skins, ostrich feathers, and sponges. Reports in 1902 showed a serious decline in commerce. It not only appeared that the country produces little of export value, but that internal troubles had stopped the caravan trade with Wadai and the western Soudan. In the spring of 1902 the Turkish government issued an edict prohibiting foreign vessels from fishing in Tripolitan waters. This edict, which was probably directed against the Italians, affected more considerably the Greeks, who carried on most of the sponge-fishing in these waters.

During the spring of 1902 friction was occasioned by an effort to enforce a conscription law among the Arabs and to levy a new land and property tax. The conscription law, which should have gone into effect on March 14, the beginning of the Turkish fiscal year, was left in abeyance on account of the hostile attitude of the Arabs, but the appraising of land under the new taxation law was carried out. The alleged "understanding" between France and Italy, allowing the latter freedom in gaining control over Tripoli, continued in 1902 to be regarded by the press as an accomplished fact. It seemed, however, that Italy's ambition to acquire, or at least to establish a protectorate over Tripoli, would have to meet not only the opposition of the Sultan, but the resistance of the followers of the new mahdi, the Sheikh Senussi, who had a base of communications at the port of Benghazi. In April it was reported that a Turkish garrison had pushed far into the French Sahara and occupied Bilma, a town on the caravan route between Tripoli and Lake Tchad. The solution of the Senussi problem, which is still pressing, although the sheikh himself died in 1902, is involved in the settlement of Tripoli. Any attempt to stop the importation of arms and ammunition through Benghazi would probably bring about a revolt of the desert fanatics. See FRENCH SOUDAN.

Mr. C. H. Allen, of the Anti-Slavery Society (British), stated in the spring of 1902 that there has long been a constant though well concealed slave trade from Tripoli to Constantinople and ports in Asia Minor; and he would welcome such an increase of Italian influence in the country as would put an end to the traffic.

TRUST AND LOAN COMPANIES. The following table giving statistics of trust and loan companies for the fiscal year 1901-02, is based on reports made to the comptroller of the currency, approximately on June 30 of each year.

LOAN AND TRUST COMPANIES.

STATES.	Number of Companies.		Deposits.		Total Resources.	
	1901	1902	1901	1902	1901	1902
Maine	17	18	$11,091,434	$16,528,147	$14,653,598	$12,577,500
Massachusetts	35	36	117,924,863	159,926,206	143,679,131	127,926,218
Rhode Island	6	11	46,999,463	69,668,957	57,920,414	57,969,940
Connecticut	14	16	10,979,519	14,867,479	14,547,583	11,434,529
Total New England States	71	81	$186,995,279	$260,990,789	$230,800,700	$209,910,187
New York	50	70	$802,518,096	$1,078,212,685	$966,528,399	$887,001,696
New Jersey	30	47	50,568,356	93,932,523	65,683,732	67,642,576
Pennsylvania	97	158	196,552,932	378,448,409	287,995,246	259,327,897
Delaware	2	2	3,724,878	2,887,784	5,441,121	1,839,584
Maryland	6	6	9,017,219	20,023,265	20,258,351	9,762,170
District of Columbia	4	4	12,791,857	20,874,571	18,426,789	15,079,693
Total Eastern States	198	287	$1,075,173,338	$1,594,379,237	$1,364,333,638	$1,240,653,616
Kentucky (total Southern States)	4	.....	$396,072	.....	$3,125,624	
Indiana	29	33	$7,372,407	$16,479,742	$12,335,208	$10,822,423
Minnesota	7	16	1,144,078	111,364,939	4,386,409	64,501,207
Total Middle States	36	49	$8,516,485	$127,844,681	$16,721,617	$75,323,690
Total United States	334	417	$1,271,081,174	$1,983,214,707	$1,614,981,605	$1,525,887,493

TRUSTS. *Political Discussion.*—Both the great political parties in the United States made the trust question the principal issue in the autumn campaign of 1902, but the Republicans generally insisted that the tariff was an issue entirely apart from the trust issue, while the Democrats insisted that the proper mode of regulating the trusts was through revision of the tariff on free-trade lines. They attempted to make the campaign a free-trade campaign, as was done in 1888 and 1892. They emphasized strongly the lower export prices given by American manufacturers. According to computations made by the Democratic congressional campaign committee the prices in the home market were from 20 to 261 per cent. higher than prices given to exporters. The most flagrant example of tariff protection was in the case of the borax trust. Other instances were afforded by the export trade in typewriters, wire rope, and cartridges.

Frequently goods were shipped to a foreign free port, and reshipped to the United States, so that after paying freight both ways, besides the tariff, they were resold more profitably than goods bought directly for the home trade. Trade with Porto Rico and Hawaii was much disturbed after 1900, because of doubts whether the islands were foreign or domestic territory.

The Democratic campaign speakers insisted that the selling abroad more cheaply than at home indicated that the manufacturers of the United States no longer needed protection from foreign competition and, furthermore, that the retention of the present high rates of duty gives the trusts the opportunity to levy exorbitant prices upon consumers at home, because of the fact that foreign producers were excluded from our markets. The testimony of Mr. Henry W. Havemeyer and of Mr. Charles M. Schwab before the Industrial Commission was made much of. Mr. Havemeyer had said the mother of all the trusts is the protective tariff and Mr. Schwab had admitted that export prices are regularly lower than home prices. The Republicans met the allegations of the Democrats by saying that the lower export prices were necessary in order to secure foreign markets. They attempted to show that by a removal of the protective tariff, industry might be very seriously injured; they held that our manufacturers were not able to compete with foreign manufacturers, notwithstanding the fact that they were by means of protection enabled to invade the foreign market, actually selling below their cost of production. They were enabled to do this because they had the home market protected. It was asserted that lower prices to foreigners were perfectly legitimate, and that the domestic consumer secured his commodities more cheaply, because protection enabled industry to be organized on a large scale, thus introducing great economies in production, which would be lost by removing protection. Removal of tariff protection would thus result in the loss of the foreign market and a consequent increase instead of a decrease in domestic prices.

The United States Steel Corporation was cited by a number of economic writers as an instance of the unfair workings of protection. In the first place it was said that its formation stock had been watered up to at least one-half of its total capitalization, and that then the plea was made that the company's duty to investors re-

quired payment on all dividends, which payment was made possible only by the maintenance of the tariff. The testimony and statements of Mr. Schwab were quoted to the effect that steel rails could be sold at a profit of $16.50 a ton, and that they were exported by the trust for $23 a ton, while sold here at $26 to $28 a ton. It was estimated by some of these writers that as a result of this system the trust has made three times the profit which it could have made without tariff protection and has in this way been able to sustain its enormous capitalization.

President Roosevelt declared in favor of trust regulation, advocating (1) publicity and (2) an amendment to the United States Constitution, providing for national incorporation and congressional regulation of the trusts. Later he strongly advocated the establishment of a permanent tariff commission to examine into conditions and recommend needed changes to Congress. As to the removal of the tariff from trust-made articles he said in his Cincinnati speech of September 20: "A remedy much advocated at the moment is to take off the tariff from all articles which are made by trusts. To do this it will be necessary first to define trusts. The language commonly used by the advocates of this method implies that they mean all articles made by large corporations, and that the changes in the tariff are to be made with punitive intent toward those large corporations. Of course, if the tariff is to be changed in order to punish them, it should be changed so as to punish those that do ill, not merely those that are prosperous." He went on to say that in rearranging tariff schedules affecting big corporations, it would be necessary to consider the interests of the smaller competitors, which, being weaker, would suffer most by removal of protective duties. Moreover, it would be necessary to consider the interests of the workmen employed by the trusts. The products of many trusts are unprotected, and would be entirely unaffected by any changes in the tariff. "The Standard Oil Company offers a case in point; and the corporations which control the anthracite coal output offer another—for there is no duty whatever on anthracite coal" (sic). Without entering into the discussion of the relative merits of protection, free trade, and reciprocity, Mr. Roosevelt concluded "that the real evils connected with the trusts cannot be reached by any change in the tariff laws."

Attorney-General Knox in an address before the Chamber of Commerce of Pittsburg, Pa., October 14, proposed as remedies that all corporations doing business outside the State chartering them should be required to observe the provisions of their charter in all the States; that public carriers should be compelled to treat all patrons alike; that corporations controlling the necessities of life should be compelled to conduct their business so as regularly and reasonably to supply the public needs; and that they should be subjected to supervision and publicity.

One of the recommendations made by the United States Industrial Commission in its report was for the imposition of a tax upon corporations or individuals engaged in interstate commerce, thereby securing a supervisory control over such industries. Professor Jenks thinks that such a franchise or license tax would be clearly constitutional and would give the Federal government all necessary supervision and control of trusts. Another plan also suggested by the Industrial Commission and since emphatically advocated by Mr. James B. Dill, of New York, and Mr. J. S. Auerbach, is the federal incorporation of corporations engaged in interstate commerce. Some doubt exists as to the constitutionality of such a measure, and if Congress enacted a federal corporation law it would be evaded unless its provisions were so lenient as to be of no utility in regulating the trusts.

The attitude of the Republicans of the Northwest is indicated by the platforms of the Idaho and Iowa Republicans. The Idaho convention met first and declared: "That many of the industries of this country have outgrown the need of protective tariff is made evident by the fact that the American manufacturer has entered the markets of the world and is successfully competing with the manufacturers of all other countries. Many of the tariff schedules adopted to foster infant industries have fully served that purpose and have now become a means of aiding and building up powerful trusts and combinations, and enable these to exact from the American purchaser the payment of higher prices than they exact for the same class of goods sold in foreign countries. We therefore favor a revision of the tariff without unreasonable delay, which will place upon the free list every article and product controlled by any monopoly and such other articles and products as are beyond the need of protection. The formation of enormous over-capitalized corporations, commonly called trusts, for the purpose of concentrating all the industries and products of the country in the hands of a few men, stifling competition and enabling them to dictate the wages of labor, and the prices of commodities to both the purchaser and consumer in the interests of their own aggrandizement, is a great and growing evil, the plain remedy for which should be laws regulating the capitalization of corporations within reasonable and moderate limits."

The Iowa Republicans declared: "We stand by the historic policy of the Republican party in giving protection to home industries, and point for its ample vindication to the extraordinary rapidity with which our national resources have been developed and our industrial and financial independence secured. We favor such changes in the tariff from time to time as may become advisable from the progress of our industries and their changing relations to the countries of the world. We assert the sovereignty of the people over all corporations and aggregations of capital and the right residing in the people to enforce such regulations, restrictions, and prohibitions upon corporate management as will protect the individual and society."

In the New England States sentiment was strong for revision of the Dingley schedules in Eastern Massachusetts, Southern New Hampshire, and Rhode Island, while in Maine, Northern New Hampshire, Vermont, and Western Massachusetts a conservative sentiment for protection was dominant. The opinion expressed by revisionists was general that if the Republicans did not take action the Democrats would. The reason for opposition to tariff revision along the Canadian border was due to the fear of Canadian competition in the manufacture of paper and wood pulp. The independent iron manufacturers along the tidewater were strongly in favor of revision in the iron and steel schedules along lines advocated by Mr. Henry W. Lamb, of Boston. Mr. Eugene M. Foss was nominated in the eleventh district of Massachusetts as Republican candidate for Congress on the platform of free coal, free hides, free iron, and free steel; but was defeated, thus showing that the sentiment for freer trade is not universal.

Northern Securities Merger.—The Northern Pacific Railway Company and the Great Northern Railway Company, owning, respectively two lines of railroad extending from the cities of Duluth, St. Paul, and Minneapolis in the State of Minnesota, across the continent to Puget Sound, and generally no farther distant from each other than 100 miles, and practically the only competitors in the transportation of traffic to and from most of the States traversed by them, in 1901 combined and purchased about 98 per cent. of the entire capital stock of the Chicago, Burlington, and Quincy Railway Company. The amount of stock acquired had a par value of about $107,000,000, and was purchased at the rate of $200 per share, the bonded indebtedness of the two companies being thus increased by $200,000,000. Thus these two trans-continental lines became the joint owners of another great system which was gradually pushing its rails northwesterly into the territory occupied by the purchasers and westwardly to the Pacific Ocean. Shortly after the purchase of the Burlington road the principal owners of the Northern Pacific and Great Northern roads caused to be organized, under the laws of New Jersey, the Northern Securities Company, with a nominal capital of $400,000,000, of which $40,000 was paid in. That company was organized to become the owner of the capital stock of the Northern Pacific and Great Northern railroad companies, and this was accomplished by an exchange of the stock of the New Jersey corporation for the stock of the two railroad companies at such price that, if the Securities Company got all the stock of both roads, its entire $400,000,000 of capital would be absorbed in the exchange.

Shortly after its organization, the Northern Securities Company acquired a large majority of all the stock of the Northern Pacific Company at the rate of $115 per share, paying therefor in its own stock at par. At the same time it acquired about 300,000 shares of stock of the Great Northern Company at the rate of $180 per share, using its own stock at par to make the purchase. Other purchases of the Great Northern stock were subsequently made until about 96 per cent. of Northern Pacific stock and 76 per cent. of Great Northern stock was held by the Securities Company. Soon after, it was charged that the Northern Securities Company was not organized in good faith to purchase and pay for the stocks of the two railway companies; that it never had money enough to do so, and that the only consideration for the transfer to it of the shares of the two railway companies was the issuing and delivery of its own shares in exchange therefor. Three actions were accordingly brought in the United States courts to test the legality of the company: one on the part of the United States by Attorney-General Knox; one by the State of Washington; and one by the State of Minnesota (*q.v.*). The Washington case was argued before the United States Supreme Court and decision was reserved. The case brought by Attorney-General Knox was originally brought in the United States Circuit Court of Minnesota, but by a special act of Congress was taken to the Circuit Court of Appeals, where it was pending at the close of 1902.

Beef Trust.—The remarkable advance in the price of meats, coupled with the disclosures elicited by the commission respecting secret rebates enjoyed by the great packing houses, and other information obtained by the Department of Justice, induced it to direct an investigation into the methods of the so-called "Beef Trust," as a result of which bills were filed under the Sherman Anti-Trust Law, and injunc-

tions issued restraining each of the six defendant concerns from combining, or agreeing upon the prices at which they would sell their products in States other than those where they are prepared for market, and also restraining them from combining and agreeing upon cartage charges for delivering their shipments at destination. Under the rules of the Federal courts, after the writs of injunction were issued, the defendants had until midsummer to answer or demur to the government's bill of complaint. They chose to demur to the bill, which raises the question whether, on the facts stated, and under the Constitution and existing laws, they are amenable to the control of the Federal government.

Amalgamated Association.—For several months negotiations were carried on between the tin-plate workers of the Amalgamated Association and the American Tin-Plate Company and the United States Steel Corporation for a 25 per cent. reduction in labor in the manufacture of tin plates for export. Hitherto the plates used in cans for exporting mineral oils had been imported, a drawback being allowed when the cans were exported. After much discussion the tin workers voted that 3 per cent. of all their wages should be converted into a trust fund, the company being allowed to draw on such a part of it as would compensate them for loss incurred in making the plates at their works, instead of importing them. But the manufacturers undertook not to contract for more export business than this 3 per cent. would cover. In other words, there was not to be more than one box for export to about seven boxes for the domestic trade.

Illinois Anti-Trust Law.—In a decision of far-reaching importance the United States Supreme Court in the case of Connolly *vs.* the Union Sewer Pipe Company, affirmed the decision on March 10 of the Circuit Court, declaring the Illinois anti-trust art of June 20, 1893, to be in violation of the 14th amendment to the Constitution and void and illegal *in toto.* The Illinois statute defined a trust as a combination organized for any or all of the following things: To restrict trade; to limit production; to increase or reduce prices; to prevent competition in manufacture, transportation or sale; to fix a standard or control rate of prices, and to enter contracts or pooling arrangements for the execution of any of these purposes. The operation of a trust as thus defined was declared to be a criminal act, and such corporations, if foreign (*i.e.* chartered outside the State), were to be excluded from doing business in the State, and if domestic (State), were to be deprived of their charters. But a sweeping clause exempted agricultural products and live stock in the hands of the producer or raiser. The court held that this clause clearly constituted class legislation in violation of the 14th amendment, which provides that "no State shall . . . deny any person within its jurisdiction the equal protection of the laws." The court stated that this amendment had frequently been construed by it to mean that no State should deny any person the protection of equal laws; that the attempted justification of the law in that it made proper classifications for the good of the State and under the general police powers of the State, could not be sustained when, as in this case, such classifications were obviously arbitrary and when they moreover clearly violated the terms of the Constitution.

Clauses exempting agriculturists or labor unions, or both, have been inserted in the anti-trust laws of nearly all States attempting such legislation. These clauses have been inserted partly from necessity, and the knowledge that no stringent anti-trust laws could otherwise be passed, and partly from the feeling that from the nature of the fundamental difference in power between combinations of laborers or agriculturists and of combinations of companies, laws which should apply with equal severity to both would be unequitable as an economic proposition. Such exemptive clauses have been incorporated in the anti-trust laws of Georgia, Indiana, Louisiana, Michigan, Mississippi, Montana, Nebraska, North Carolina, South Dakota, Tennessee, Texas, and Wisconsin; and by implication the anti-trust statutes of these States are all declared illegal. The decision gains further importance from the fact that repeated attempts have been made in Congress when it was proposed to enact an anti-trust amendment to incorporate therein virtually the same exempting clause. See SHIPPING MERGER and UNITED STATES STEEL CORPORATION.

TUBERCULIN. See the following article.

TUBERCULOSIS. The tuberculosis problem continues to occupy a prominent place in the minds of sanitarians all over the civilized world. The mortality from this disease is rather increasing than diminishing. Pathologists are endeavoring to solve the problem by serum treatment; sanatoriums by segregating the tuberculous in country localities; and clinicians are vaunting various new drugs. The international tuberculosis congress for 1902 met at Berlin. The house-to-house fight against tuberculosis in France was described by Dr. Chalmette of Lille. This consists in the sanitary education of the poor done mostly by intelligent workmen, instructed for the purpose, who explain how to make a house healthy, and to

disinfect linen, and in addition supply material relief during the patient's enforced idleness. The congress spent one day in studying the great public sanatorium at Belzig, near Potsdam. The buildings of this institution cost $2,500,000, and will accommodate 600 persons, one-half of whom suffer from tuberculosis, the other half from chronic diseases of the nerves, heart, or kidneys. The cases are all ambulant, and the maximum stay at the hospital is limited to 14 weeks. Dr. Rémond, of Metz, describes the methods of antitubercular treatment in and near Berlin. The Berlin polyclinic treats over 6000 out-patients annually, sending some to sanatoriums, the others being educated hygienically and given appropriate medicines. Summer colonies have been started at Grunewald and Jungferheide, near Berlin. Patients make daily trips thither during the summer months, and are supplied with plain meals and milk. It is estimated that there are accommodations for 20,000 sanatorium patients in Germany. Prizes have been offered, amounting to $4000, by the committee appointed by the king of England for the best description of a complete sanatorium for tuberculous patients, the sanatorium to accommodate 100 patients. As a result of a recent conference held at Ottawa by the Canadian Association for the Prevention of Tuberculosis, it is announced that two new sanatoriums will shortly be built near Ottawa and Montreal. In the United States the number of sanatoriums has greatly multiplied during 1902. Many States have institutions for the treatment of tuberculosis. The Massachusetts institution claims that its percentage of cures has increased one-third in three years. New York has appropriated $150,000 for the erection of a State sanatorium in the Adirondacks near Saranac Lake. Vermont is considering the erection of a similar institution, and Pennsylvania has appropriated $100,000 for the same purpose. New Jersey is to have a State sanatorium at High Bridge, $50,000 having been appropriated for the purpose. The Charity Organization Society of New York City has undertaken to fight the disease systematically through research into its social features, through education by the publication of pamphlets and the giving of lectures, by encouraging movements for suitable public and private sanatoriums, and by taking care of indigent consumptives. According to Dr. Sidney R. Hodge, tuberculosis is a very common and fatal disease in Hankow, China, and vicinity. Overcrowding, bad ventilation, poor living, and a hard life are the chief causes of the spread of the disease. The Chinese have an ingrained prejudice against fresh air. All varieties of tubercular infection abound. The only treatment used by the Chinese is giving opium.

The early diagnosis of tuberculosis by blood serum agglutination of the tubercle bacilli has been tested by Dr. E. Romberg of Germany, Dr. A. Ilventa of Italy, and others. Romberg's technique is as follows: A dry culture of tubercle bacilli is thoroughly triturated and emulsified, and to one liter of the emulsion 5 gm. of carbolic acid is added; this is diluted 1 part to 3 of distilled water, and serum extracted by wet cups is added in proportion of 1 part to 5, 10, 15, etc. The reaction is completed in test tubes and considered positive when the solution becomes clear in 44 hours. Altogether the reaction was tested in 256 individuals with the following results: In 33 new-born children, that is, in the blood extracted from the placenta, no reaction occurred. In 102 persons over 14 years of age, without clinical signs of tuberculosis, the reaction was positive in 64 and negative in 58. Forty-three positive cases agglutinated only in proportions of 1 to 5 and stronger, and 18 of the remainder in dilutions of 1 to 10. The method as at present undeveloped is therefore very unreliable. Tuberculin has also been widely used both as a means of diagnosis and cure of phthisis. This is given in doses of .005 gm., increased when necessary to .010 gm. In the presence of tuberculosis a characteristic reaction takes place, typically at the eighteenth hour after injection. There is a rise of at least two degrees of temperature, accompanied by chilly feelings, headache, nausea, and muscular pains. As a specific treatment many observers regard tuberculin as superior to any other. Robert Williams, in the belief that goats' milk can cure tuberculosis, is establishing an immense goat camp in the Migollin mountains near Phœnix, Ariz. Williams regained his own health on a constant diet of goats' milk. His treatment provides a pint of milk with bread morning and night, with a half pint at intervals of two hours during the day. He wants the government to undertake the matter, averring that it could establish in the mountains of northern Arizona a series of sanatoriums capable of accommodating 10,000 patients, and pay expenses out of the profits on hides, wool, and meats. See CHARITY ORGANIZATION.

TUNIS, a French protectorate in North Africa, on the Mediterranean Sea between Tripoli and Algeria, has an area of about 51,000 square miles and a population of 1,900,000, largely Bedouin Arabs and Kabyles. The French civilian population numbered in 1901 24,204, and there is a Jewish population of 60,000. Tunis, the capital, has a population of 170,000, of whom 40,000 are Europeans. The administration, nominally in the hands of a native bey, is in reality under the control of a French resident-general acting under direction of the French foreign office. There

are two military circles and thirteen civil districts under French *contrôleurs*, assisted by native subordinates. French tribunals administer justice in all cases in which Europeans are concerned. The French military forces number about 15,000. For 1901 the revenue amounted to 39,237,154 francs and the expenditure to 39,122,435 francs. The budget estimates for 1902 placed the revenue and expenditure at 54,113,963 francs and 54,026,154 francs, respectively. Agriculture is the chief industry. Among the more important products are wheat, barley, oats, olives, dates, wine, fruits, nuts, alfa grass, and cork. Iron, lead, and zinc are mined, and the quarries are valuable. The imports in 1901 were valued at 64,680,000 francs and the exports at 39,130,000 francs, which was an increase in imports and a decrease in exports compared with 1900. There are 588 miles of railway in operation, of which 417 miles belong to the state.

History.—Sidi Ali (*q.v.*) Bey of Tunis, died June 11, 1902, and was succeeded by his son Mohammed el Hadi Pasha, who was born in 1855. Early in the year the French parliament authorized a Tunisian loan of 40,000,000 francs for the construction of 1000 kilometres of new railway lines. In October it was announced that the French government would soon begin laying a telegraph cable across the Sahara Desert from Tunis to Lake Tchad. French activity in fortifying and establishing a strong naval base at Bizerta during 1902 was frequently commented upon in the European press. The port, which possesses one of the best harbors on the Mediterranean, is being more impregnably fortified than Malta, than which place, naval authorities say, it is much more important strategically. During the early months of the year a plague of locusts did much damage to crops in the interior, but the Arabs have learned from experience that the grain-fed locusts are about as nourishing as the grain itself. The government has established free salt depots throughout the country, in order that the nomadic tribesmen may receive salt with which the locusts may be made more edible.

TUNNELS. In the building of tunnels the record for the year 1902 naturally begins with a statement of the progress of work on the tunnel under the Simplon Pass of the Alps, which has now been in process of construction for several years, and which when completed will be the longest tunnel in the world. The Simplon tunnel is the fifth tunnel of the Alps, and it compares with the other Alpine tunnels in length and elevation as follows (the first figure representing length in miles and second elevation in feet): Mont Cenis, 7.5 and 4298; Arlberg, 6.25 and 4300; St. Gothard, 9.75 and 3788; Albula, 4 and 6000; Simplon, 12.4 and 2310. The Simplon Pass occupies a position about midway between the Mont Cenis and the St. Gothard. The tunnel when completed will bring Brindisi, the dispatch port for the Indian mails, within 1400 miles of London, or 180 miles nearer than at present. Work is in progress on the tunnel from both ends, where large power houses and working plants have been installed. At the north, or Swiss, end, the only difficulty encountered has been due to subterranean heat, which has reached 53° C. and necessitated the employment of artificial refrigeration. At the Italian end there has been trouble with soft material and with water coming from the fissures of the rock. This flow of water was 34½ cubic feet per second during November, 1902. The latest official reports of progress are dated December 1, 1902, and show that the heading from the north end had progressed 27,096 feet, and from the south end 18,739 feet, making the aggregate length of heading excavated 45,835 feet. To connect with the Italian end of the tunnel a railway is being built from Domo d'Ossola to Iselle. This line has several tunnels, the longest of which is built on a spiral, like one turn of a spiral spring, and is 9842 feet long. Plans have also been completed for a five-mile tunnel through the Jura mountains to give French railways a shorter route to the Simplon tunnel by a cut-off connecting Dijon and Geneva.

The Albula tunnel, four miles long, was practically completed during 1902. Another foreign tunnel of note completed during 1902 is the Meudon tunnel on the Paris-Versailles line. This tunnel, which is 10,990 feet long, passes through marl, which gave immense trouble in excavation. The methods adopted in overcoming these difficulties furnish one of the most interesting exhibitions of engineering skill that recent years have chronicled. In Japan the Sasago tunnel, 4646 metres (15,243 feet) long, was also practically completed during 1902.

In the United States the year saw work resumed on the long abandoned Hudson River tunnel, and at the close of the year there was a fair prospect that this work would be completed. It was in 1874 that the first company was formed to build a tunnel from Fifteenth Street in Jersey City to Morton Street in New York City. A shaft was sunk 60 feet on the New Jersey side, and from its bottom twin tunnels were started toward the New York shore. The plan of construction adopted was to hold back the water by air pressure and to line the excavation with a cast-iron ring built up of segments inside of which was a ring of brick work. About 300 feet of the north tunnel had been completed, when in July, 1880,

a leak started near the shaft and the tunnel was flooded and 20 men drowned. The damage was repaired and work resumed and continued until the north tunnel had been completed 1550 feet and the south tunnel 570 feet. Lack of money then necessitated stopping the work. In 1890 an English company undertook the abandoned work and continued it, using the shield system until about 4000 feet of tunnel on the New Jersey side and 200 feet on the New York side had been completed. After this financial difficulties arose, and the work was again abandoned. In 1902 the New York and New Jersey Railroad Company bought the abandoned property and resumed work on the general plan of the English engineers. At the end of the year the new company had built about 240 feet more of the north tunnel. It is the intention of the new owners to use the tunnel for electric cars. During 1902 also the Pennsylvania Railroad secured its franchise for building the proposed tunnel from its lines in New Jersey under the Hudson River, Manhattan Island, and the East River to a connection with the lines of the Long Island Railroad system. No construction work was begun on this tunnel, but a construction organization was completed and much work done considering plans for the prosecution of the work.

In New York City proper, work was substantially advanced on the tunnels forming portions of the Rapid Transit Railway. There are four of these, which are of more than usual interest. The first of these is the double tunnel, about 1850 feet long, between Thirty-fourth Street and Forty-first Street on Park Avenue; the second is the Central Park tunnel, 3887 feet long; the third is the Washington Heights tunnel, 10,366 feet long; and the fourth is the Harlem River tunnel, some 1500 feet long. The last work is a subaqueous tunnel through soft ground, and the other three are solid rock tunnels. The extension of the Rapid Transit Railway to Brooklyn, the contract for which was let in 1902, also calls for a long tunnel under the East River.

In Boston the double track trolley car tunnel under the harbor to East Boston made successful progress during 1902. In Chicago the Illinois Telephone and Telegraph Company, which is building about 60 miles of deep tunnel for telephone wires, completed some 15 miles of its work during 1902.

TURKEY, or the OTTOMAN EMPIRE, an absolute monarchy in southeastern Europe, southwestern Asia and northeastern Africa. The capital is Constantinople.

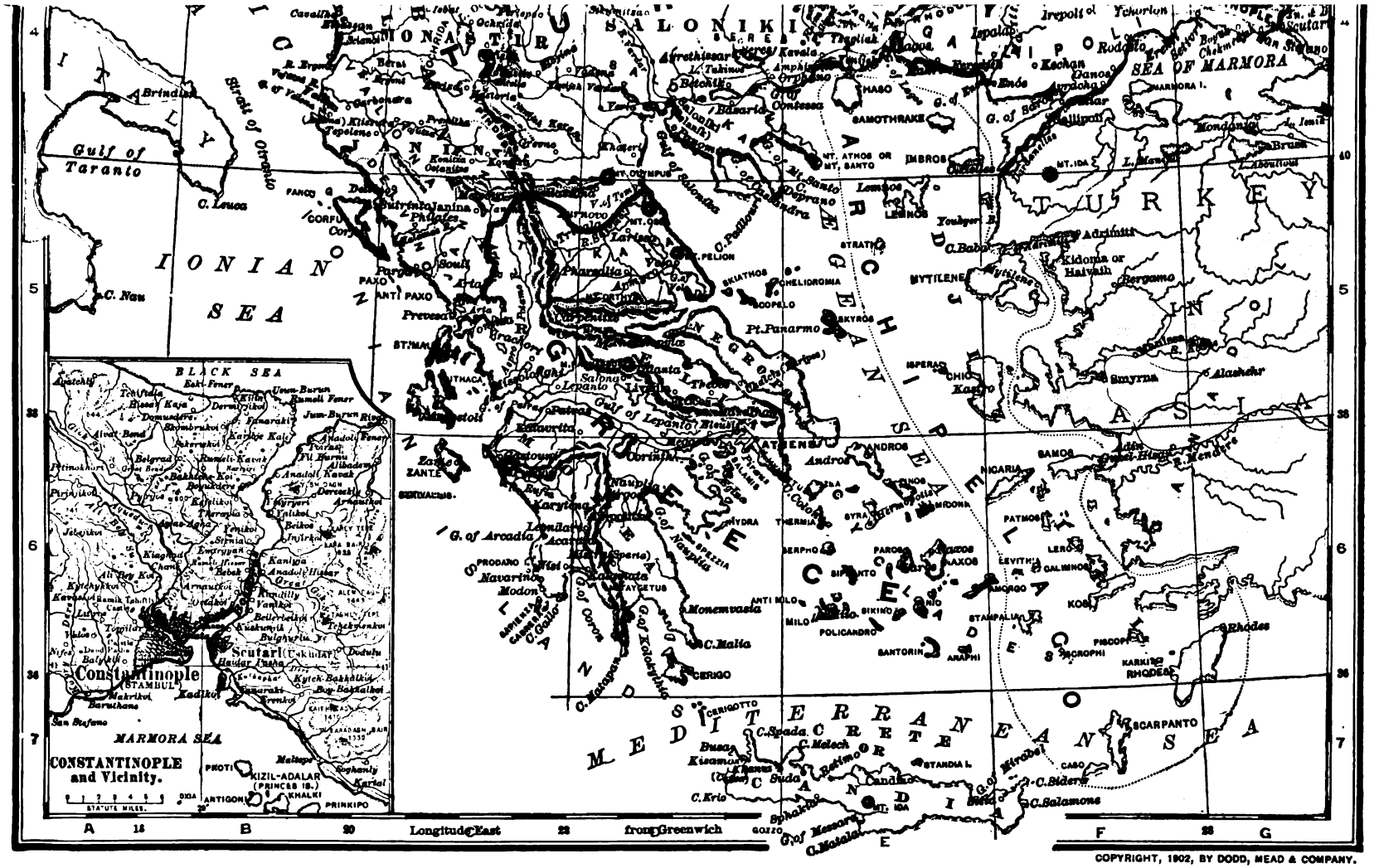
Area and Population.—The estimated area is 1,115,046 square miles and the estimated population about 24,921,000. These figures are divided as follows: Turkey in Europe, 65,752 square miles and 6,086,300 inhabitants; Asia Minor, 194,389 and 9,355,000; Armenia and Kurdistan, 72,491 and 2,472,400; Mesopotamia, 100,205 and 1,350,300; Syria, 109,509 and 3,317,600; Arabia (only Hedjaz and Yemen), 173,700 and 1,050,000; Africa, 398,000 and 1,300,000. These figures do not include Bosnia-Herzegovina and Novibazar, Samos, Crete, Bulgaria and Egypt, whose aggregate estimated area is 464,936 square miles and population about 15,509,000. The population of Constantinople is stated at 1,125,000, Smyrna 201,000, Bagdad 145,000, Damascus 140,500.

Government, etc.—The supreme head of the government is the sultan, whose will in so far as it does not conflict with the precepts of the Koran is absolute. Under him legislative and executive authority is exercised in affairs temporal by the grand vizier and in affairs ecclesiastical by the Sheik-ul-Islam. Besides these there are executive officials in control of the several departments of government; together the ministers are known as the Sublime Porte, a name taken from the gateway of the building in which they meet. The sultan since 1876 has been Abdul Hamid II. Important ministers in 1902 were: Grand vizier, Kutchuk Said Pasha (appointed November 17, 1901); Sheik-ul-Islam, Jemalledin Effendi (appointed September, 1891); minister of the interior, Memduh Pasha; foreign affairs, Tewfik Pasha (appointed November, 1895); finance, Reshad Pasha; war, Riza Pasha.

The peace strength of the army is placed at 700,620; in actual service, however, there are about 10,000 officers and 170,000 men. In November, 1902, an iradé was issued authorizing the minister of war to contract with the firm of Krupp for 16 batteries, that is, 96 guns; the minister was also authorized to purchase 220,000 Mauser rifles of small calibre (7.5 mm.). These two orders require an expenditure of about £T900,000. The fleet is antiquated and of small practical value.

The monetary standard is gold and the unit of value the piastre, worth 4.4 cents. The Turkish pound is 100 piastres. Estimated revenue and expenditure for the fiscal year 1898 were £T18,511,322 and £T18,429,411, respectively; these figures do not differ greatly from the average revenue and expenditure (including supplementary credits) in the fiscal years 1893-95, which were £T18,927,745 and £T19,796,182, respectively. The debt (loans) on June 30, 1901, was £T133,939,003. In addition to loans Turkey still owes the greater part of the Russian war indemnity, amounting in 1898 to £T24,513,000. On July 12, 1902, a Russian note was laid before the Porte


BALKAN PENINSULA.
TURKEY IN EUROPE,
RUMANIA, SERVIA,
MONTENEGRO, BULGARIA,
AND GREECE.
SCALE OF MILES
0 50 100 150
Railroads
HUNGARY
AUSTRIA
SLAVONIA
BANAT
TRANSYLVANIA
EASTERN CARPATHIANS
BUCOVINA
MOLDAVIA
BESSARABIA
RUSSIA
PODOLIA
WALLACHIA
SERVIA
BULGARIA
EASTERN RUMELIA
MONTENEGRO
ALBANIA
BOSNIA
HERZEGOVINA
DALMATIA
CROATIA
ADRIATIC SEA
BLACK SEA
BELGRAD
BUCHAREST
SOFIA
Mouths of the Danube


ITALY
Gulf of Taranto
Strait of Otranto
IONIAN SEA
SALONIKI
MONASTIR
JANINA
ADRIANOPLE
SEA OF MARMORA
TURKEY
ASIA
ARCHIPELAGO
ÆGEAN SEA
GREECE
NEGROPONT
Gulf of Lepanto
Gulf of Salonika
CYCLADES
CRETE
CANDIA
MEDITERRANEAN SEA
Smyrna
Athens
Corfu
Zante
Cerigo
Rhodes
Scarpanto
Mytilene
Chio
Samos
Lemnos
Imbros
Samothrake
Mt. Olympus
Mt. Ida
Mt. Athos or Mt. Santo
CONSTANTINOPLE and Vicinity.
BLACK SEA
MARMORA SEA
Constantinople
Stambul
Scutari
Statute Miles
Longitude East from Greenwich
A
B
E
F
G
4
5
6
7
18
20
22
28
36
38
40

claiming £T930,000 as compensation for delay in the payment of this indemnity. The claim in its entirety was disallowed by the Porte. In March, 1902, the sultan issued an iradé instructing the Porte to negotiate through M. Rouvier with British, French, and German syndicates for the unification of the debt, and on August 3 it was announced that M. Rouvier's plan had been adopted by the sultan unreservedly.

Commerce and Communications.—In the fiscal year 1897 imports and exports were valued at £T21,359,706 and £T15,428,458, respectively; in 1898, £T23,434,035 and £T14,744,498, respectively; in 1899 (the last year for which commercial statistics are available), £T26,621,250 and £T13,425,440, respectively. The leading imports are cotton goods and yarns, sugar, coffee, rice, woolen goods, petroleum, and flour. The most important exports include silk and cocoons, grapes, mohair, bones, valonia, and wheat. Imports from and exports to the countries of greatest commercial importance were valued in Turkish pounds as follows in the fiscal years 1898 and 1899:

	1898		1899	
	Imports from	Exports to	Imports from	Exports to
Great Britain	9,873,036	5,929,074	10,284,970	4,629,590
Austria-Hungary	4,603,630	1,369,218	5,231,310	1,202,350
France	2,424,180	4,330,394	2,474,030	4,298,970
Russia	1,668,623	429,220	1,751,620	468,300
Italy	990,667	485,850	1,386,950	540,740
Roumania	391,017	258,697	962,900	291,130
Bulgaria	496,139	875,868	910,970	313,000

Trade with the United States during the fiscal year 1899 is stated at £T43,840 for imports and £T505,040 for exports.

Railway mileage is stated at 1267 miles in European Turkey and 1713 in Asiatic. There are about 23,440 miles of telegraph lines.

The Bagdad Railway.—The Anatolian Railway Company (largely a German corporation), which holds the concession for the projected Bagdad railway, owns the Anatolia Railway, extending from Haidar-Pasha on the Bosphorus, opposite Constantinople, to Angora (the main line, 358 miles) and to Konieh (a branch, 276 miles). The branch to Konieh leaves the main line at Eskishehr, midway between the Bosphorus and Angora. The Bagdad line is planned to extend from Konieh to the head of the Persian Gulf, a distance of about 2500 kilometres (1550 miles). In February, 1902, an imperial iradé was issued definitely granting the concession for a period of 99 years. According to this edict definite plans must be submitted to the government within a year and a half from the date of this concession, work must begin within the next three months, and the entire line be ready for operation within eight years. The annual government guarantee was fixed at 16,500 francs ($3185) a kilometre (0.6214 mile), of which 4500 francs ($869) is for working expenses. The concession stipulated that in case the kilometric receipts should exceed 16,500 francs, the surplus up to 22,000 francs ($4246) should be paid to the government, and that 60 per cent. of any surplus over 22,000 francs should be paid to the government and 40 per cent. kept by the company. It is probable, however, that the receipts will not in a long time equal the kilometric guarantee. In this connection it may be pointed out that no Turkish railway of any considerable length, except in the neighborhood of Smyrna, is at present able to meet its expenses unaided by the government. The question of the kilometric guarantee presented the greatest difficulty in beginning the railway; and the concession of 1902 was not wholly reassuring, for the Turkish government had not been able to fix upon any particular source of revenue for meeting the guarantee. The railway will be a single track with a gauge of 1.44 metres, and will be built so as to allow the use of fast trains, covering the distance between the Bosphorus and Bagdad in 55 hours. At the time of the concession, in 1902, it was expected that the line would pass through Caramania, cross the Taurus Mountains and continue through Adana, Mersina, and Aleppo; thence it would run directly east to Mosul, follow the Tigris to Bagdad, and terminate at Basra, or better at the port of Koweyt (see ARABIA, paragraph Koweyt). Some discontent was manifest among the Germans, since the concession stipulated that the section from Mosul to Bagdad should pass along the right bank of the Tigris, a comparatively uninhabited district, instead of following, as was originally intended, the left bank, a country fertile, rich in minerals, and thickly populated. Later in the year the railway scheme seemed still less promising on account of the apparent abandonment of Koweyt as a possible terminus. The Germans blamed Great Britain for insisting upon the practical autonomy of Koweyt. Early in 1902 it was stated that the company purposed to offer 40 per cent. of its capital to French or Belgian subscribers and a like amount to Russians; but Russia

is not in favor of aiding a railway, an obvious purpose of which is to promote competition with her grain exports.

The Macedonian Troubles.—During the early part of the year the outbreaks against Turkish rule in Macedonia continued with substantially little change from 1901. The struggle was marked by occasional engagements between the revolutionists and detachments of Turkish troops, but in none of these was the loss of life very considerable. In the latter part of September the outbreaks became more general and more serious on account, it was said, of the enthusiasm aroused by the celebration in Bulgaria of the victory of Shipka Pass. The enthusiasm spread to Macedonia, causing the Bulgarian population to break out in a fresh uprising against Turkish misgovernment, and to meet it 40,000 Turkish troops were immediately mobilized. On September 24 it was reported that anarchy was rapidly spreading throughout Macedonia and that Bulgarian bands were directing their operations successfully against Turkish gendarmes. Two days later it was reported that 300 revolutionists, surrounded by Turkish troops in the district of Salonika, had cut their way through a cordon after a sanguinary fight in which both sides lost heavily and that troops were being dispatched rapidly to the interior of Macedonia. The renewal of the insurrection had been brought about chiefly through the activity of Colonel Zontcheff, an enthusiastic leader of the Macedonian Committee, who organized branch committees throughout Macedonia and directed the work of preparation and organization. A temporary setback was given to the revolt early in September by the arrest of Colonel Zontcheff and the seizure of the papers of the Macedonian Committee. The active leadership of the revolt was assumed by Colonel Jankoff, a former Bulgarian officer, who had at his disposal over 3000 men divided into several bands and operating in several districts. A provisional government was set up, telegraphic and railway communication was interrupted, and soon the whole province was reported to be in a state of siege. During the first week in October Colonel Jankoff issued a proclamation inviting all Bulgarians in Macedonia —a very large part of the population—to take up arms for the liberty of their country. He reminded them that other Balkan states had won their freedom by fire and blood, but urged his followers to abstain from injuring non-combatant Mussulmans. About October 12 the Porte sent an identical note to the Powers complaining that Bulgaria was inadequately policing her frontier, that she was permitting Macedonian bands to cross it, and that remnants of those bands after suffering defeat from the hands of Turkish troops were allowed to take refuge in Bulgaria. It was well known that the Bulgarian government was secretly in sympathy with the revolutionists and refused to interfere against them except when forced to do so by international public opinion. Thereupon the Bulgarian government addressed a note to the Powers denying the charges made by the Porte and asking that the cause of the revolution be removed by the introduction of reforms in the Turkish administration, without which the Bulgarian government could not restrain the revolutionary movement which was agitating the country. Earlier in the year several diplomatic remonstrances, particularly from Russia, had been made to the Porte, urging reform, but without success. In October Germany, and in November Great Britain and France joined Russia and Austria-Hungary, in representing to the Porte the necessity of introducing reforms into the Macedonian administration. Finally the Porte yielded and early in December decreed certain improvements with regard to public works, industry, and public instruction. Provision was also made for the reorganization of the gendarmerie from both Mussulmans and Christians, the appointment of civil tribunals consisting of an equal number of Christians and Mussulmans, and the investment of the valis with reasonable powers. The announcement of these reforms did not end the revolt, since it was said that the scheme of reforms merely repeated existing regulations which had been unenforced in the past and contained no feature to inspire hope and confidence in the future. Armed bands of insurgents on the one hand and Turkish troops and gendarmes on the other, with the usual incidents of semi-barbarous warfare, pillaged the country and burned the homes of the inhabitants. Hundreds of fugitive women, children, and old men fled to Bulgaria to escape the atrocities of the Turkish troops, and at the close of the year Macedonia seemed to be less pacified than ever. Near the end of 1902 the Russian minister of foreign affairs visited the courts of Servia, Bulgaria and Austria to secure the cooperation of those Powers in the preparation of measures necessary for the improvement of the condition of the Macedonian Christians and a scheme for presentation to the Powers was agreed upon.

Among the chief causes of complaint against the Turkish administration are the unjust fiscal system, a corrupt bureaucracy, the lack of justice and security, and the social subjection to the Ottomans which amounts to moral degradation. In the autumn the Macedonian Committee formulated their demands in a petition to the Bulgarian and Russian governments. These included the erection of Macedonia into a self-governing province with Salonika as its capital; a governor elected for a

term of five years; a provisional parliament elected by popular vote and empowered to discuss all questions of domestic concern; that the security of person and liberty of the press be guaranteed; that the local officials be chosen from the preponderant nationality in their respective districts and that the official language in each district, besides Turkish, be that chosen by a majority vote. One of the chief causes operating against the success of the revolutionary movement in Macedonia is the racial and religious antagonism. In northern Macedonia the population is largely Slav, being Bulgar in the east and Serb in the west, while in the southern part the people are almost purely Hellenic. Since the separation of the Bulgarian Church from the Greek Church in 1870, the religious antipathies of the people have divided them to a considerable extent. On account of the racial and religious diversity it is objected that a semi-independent principality would be a practical impossibility.

Firmilian.—The familiar charge that the Christian races of the Balkans have a greater antipathy for each other than for the Turks was illustrated in the spring of 1902 by the friction occasioned between the Serbs and the Bulgars in the vilayet of Kassova over the consecration of Mgr. Firmilian, a Serb, as the Greek patriarch's official metropolitan in Uskub. The Serbs held that Uskub is in their sphere and that hence the sultan should authorize the consecration of the Servian bishop, while on similar grounds the proposed action was as vigorously opposed by the Bulgars. The consecration of Mgr. Firmilian, which necessarily would wound the national vanity of Bulgaria, had been deferred since October, 1897, the date of his appointment, largely through the opposition of the Bulgarian exarch at Constantinople. The significance of the consecration was more than ecclesiastical, since the incumbency of the post at Uskub is an important factor in determining the preponderance of Bulgarian or of Servian influence in northern Macedonia, and so intense was the Bulgarian objection that rebellion was threatened. The sultan made the most of the conditions in his usual way of pitting Christian against Christian to gain time and quiet for the Turk. But Russia, fearing Bulgarian nationalistic and expansive ambitions, supported through her ambassador at Constantinople the Servian contention, which finally triumphed in the consecration of Mgr. Firmilian on June 28, 1902, in the Greek convent of Skaloti, near Enos, by the metropolitans of Lytitsa, Scio, and Vodena.

Release of Miss Stone.—Miss Ellen M. Stone, the American missionary who was captured by brigands in the Salonika district on September 3, 1901, was released with her companion, Mme. Tsilka, near Strumitza, on February 23, 1902. Though both had endured hardships in the way of fatiguing journeys with the brigands, neither had been subjected to ill-treatment, and at the time of their release both ladies, as well as Mme. Tsilka's infant daughter that had been born in captivity, were in good health. The amount of ransom originally demanded by the brigands was £T25,000 ($110,000), but they received only $72,000. Owing to the brigands' precarious position, several attempts to pay this indemnity resulted in failure, but the money was finally turned over on February 6. The opinion prevailed at the time, and there seems to be little reason to doubt its accuracy, that Miss Stone's captors were not professional brigands, but were Bulgarians or other supporters of the policies of the Macedonian Committee, and that the kidnapping was simply a political move to gain some addition to their means for an insurrection.

Albania.—During 1902 the inherent hostility existing between the Albanians and the Turkish authorities continued to manifest itself in popular disorders and disaffection, accompanied by the usual reprisals and outrages of the Turks, though conditions were not so bad as further to the eastward, where the irritating Bulgarian influence is strong. Various encounters between Albanian brigands and Turkish troops were reported, as well as conflicts between Albanians and inhabitants of other so-called Christian nationalities. Italy's desire to extend over the country her protection, perhaps sovereignty, is well known. The primary desire of the Albanians themselves, both in Ottoman territory and in Italy, is separation from Turkey, and in 1902 they were looking forward to the establishment of a self-governing state. The success of such a state is not enhanced by the fact that three claimants to the anticipated throne have appeared. These are Don Juan Aladro Castriot, a Spaniard; Marquis Auletta, or John Castriot Scanderbeg; and Baron Fossacena, or Philip Castriot. The two latter are Neapolitans; all allege descent from the Albanian hero George Castriot, better known as Scanderbeg.

Turkish-Persian Relations.—In August an understanding in the form of a preliminary treaty between Persia and Turkey was reached with regard to a customs arrangement on the basis of the most-favored-nation principle. The treaty provides for a 5 per cent. *ad valorem* duty on all Ottoman merchandise imported into Persia, while importations from Persia into Turkey will pay 8 per cent.

Lebanon.—The Syrian mutessarifat of Lebanon (area about 2500 square miles, population variously estimated at from 200,000 to 400,000) must always have a

Christian governor, according to international agreement. After the ambassadors of the Powers in Constantinople had rejected, in August, 1902, the sixth candidate proposed by the Porte for the governorship of Lebanon, they nominated, on September 27, Muzaffer Pasha. The Turkish foreign minister, Tewfik Pasha, raised no objection and the protocol was signed. The new governor, who is described as able and upright, is of Polish origin, his real name being Tchaikowsky. He was promoted to field marshal in the Turkish army and was given the rank of vizier. The inhabitants of Lebanon are mostly Maronite and Greek Christians.

Foreign Clerics.—In the summer of 1902 France practically waived her traditional right, which up to that time had not been contested by the Turkish authorities, to protect all Roman Catholic clerics in the Levant. This change came about through the wrangle of Greek and Latin (mostly Italian) monks in Jerusalem in November, 1901. The Greeks, it appears, made an unwarranted attack upon the Latins, and France at the instance of Russia declined to demand their punishment. Italy and Germany, however, forced the case and secured the conviction of the offenders in a Turkish court (June 3), and the right to protect their respective clerical subjects was recognized. Through this affair France has in some degree lost prestige in the Levant.

Congress of Liberals.—A congress of 47 delegates representing Ottoman liberals of various nationalities, including the Turkish, Greek, Albanian and Armenian, was held in Paris early in February, 1902, under the leadership of Prince Sabah Eddin. While the members repudiated in general the régime of Abdul Hamid, they announced as their common aim the maintenance of Turkish territorial integrity, the re-establishment of order, and respect for the fundamental laws and for international treaties, especially the Treaty of Berlin, which they maintained should be applied throughout the empire. Against the vigorous protests of the minority, led by Ahmed Riza, a resolution was adopted appealing to the foreign Powers for their good offices in bringing about the needed reforms. This measure was opposed on the ground that such interference would encroach upon the independence of Turkey. In June, 1902, Prince Sabah Eddin, who is a son of Mahmud Pasha, was arrested by the Russian authorities at Tiflis, charged with attempting to organize an insurrection in Armenia. See ARCHÆOLOGY, ARABIA, ARMENIA, BALKAN PENINSULA, BULGARIA, CRETE, CYPRUS, EGYPT, and TRIPOLI.

TURKISTAN, RUSSIAN. See CENTRAL ASIA, RUSSIAN.

TUSKEGEE NORMAL AND INDUSTRIAL INSTITUTE, Tuskegee, Ala., established in 1880 for the training of colored young men and women. The institute had in 1901-02, 112 officers and instructors and 1384 students. The income for the year was $341,000, with gifts aggregating $129,561. The library given by Mr. Andrew Carnegie was completed, and Rockefeller Hall, a men's dormitory, an office building, and two bathhouses were in process of construction. Among the gifts of the year were funds for the erection of the Collis P. Huntington memorial building, a dormitory for women, a memorial gate, to be known as the Lincoln gate, and several cottages for teachers. The growth of industrial training at the institute is shown by the fact that the students now receive instruction in 34 industries. Among the chief needs of the institute are an adequate endowment fund and funds for scholarships and for the erection of additional buildings.

UGANDA, a British protectorate in equatorial Africa, has an estimated area of about 120,000 square miles and a population of perhaps 3,000,000. The British resident commissioner since late in 1901 has been Lieut.-Col. J. Hayes Sadler. The native king, Daudi Chua, is a minor, under the regency of three native chiefs. The protectorate is regarded by the British as a territory of much promise. Christian missionary effort is meeting with remarkable success. During 1902 there were terrible ravages of the sleeping sickness, to which, in 1902, between 20,000 and 30,000 persons succumbed. The so-called Uganda Railway is wholly within the British East Africa Protectorate (*q.v.*). In 1902 Sir Harry H. Johnston, the former British commissioner, published a remarkably able and comprehensive work entitled *The Uganda Protectorate.*

UNITARIANS form a sect, the distinctive tenet of which is belief in the unity of the godhead, that originated in 1815 as a denomination of the United States. There are now 460 churches, 12 new churches having been added during the last year, and 548 ministers, an accession of 27, and an approximate membership of 71,000. The work of the church is carried on through the American Unitarian Association (see below), the Unitarian Sunday School Society, National Alliance of Unitarian and Other Christian Women, and the Young People's Religious Union, all of which maintain headquarters at 25 Beacon Street, Boston. Special committees of the association have been active during the year 1902 in investigating the condition of the country work, on retiring allowances for ministers, on the sources of the Unitarian ministry, on non-sectarian education, and on plans for new church build-

ings. The president and secretary of the association with several others have given an increased amount of attention to the work of visiting and encouraging the churches and of preparing the way for new churches. A representative has been maintained in Cuba for the circulation of Unitarian literature and for inquiry into the religious conditions of the island. The general fund of the association, including $140,000 belonging to the church building loan fund, amounts to $742,000, more than $60,000 having been added this year. For denominational work during the year a sum exceeding $100,000 was expended. The publication department of the church issued some 350,000 tracts, including 33 new titles; and a number of important new books were printed, among which was *Unitarianism in America*, a history of its origin and development, by George Willis Cooke.

American Unitarian Association, the executive organization of the church, conducting particularly its missionary activities, was founded in 1825. It maintains subordinate offices in New York City and in San Francisco, the building in Boston that serves as its headquarters being valued at $200,000. Annual conventions in May are held in Boston. President, Rev. Samuel A. Eliot, D.D.; secretary, Rev. Charles E. St. John, 25 Beacon Street, Boston, Mass.

UNITED BRETHREN IN CHRIST, instituted as a church in 1800, though the denomination really dates from 1766. Including the membership of the radical body (old constitution), which was established in 1889 by opponents of the revised constitution adopted by the majority, the United Brethren now number some 275,000, the larger body having 249,314 communicants, a gain of 4647 for the year, with 2401 ministers and 4034 churches, the property of which is valued at $7,010,104. The contributions for all purposes aggregated $1,661,524, of which $92,733 were received for missions. During the year 1902 the debt of $29,000 on Union Biblical Seminary, the theological school of the church, was raised and $82,000 were secured for Otterbein University, the oldest college of the denomination, besides large sums for other educational institutions. One of the most notable educational advances of 1902 was that achieved in the consolidation of the church school in Kansas, Lane University, with Campbell University at Holton. This transfer brings to the church new property and endowment amounting to $185,000, whereby the consolidated institution, after June, 1903, to be known as Campbell College, will become one of the best equipped in the denomination. During the year two new missionaries were sent to Africa and two to China, and a plan of joint superintendence for the missions in Africa under the Woman's Board and the General Board of the church, was agreed upon. The United Brethren lost by death Bishop James William Hott, D.D., LL.D. (*q.v.*), who had been a leader in the denomination for nearly thirty years. The other bishops chose as his successor the Rev. George M. Mathews, D.D., of Dayton, O. A significant movement was begun in 1902 in the interest of federation between the United Brethren Church and several other smaller religious bodies in the United States. A memorial was addressed by a number of prominent ministers and laymen to the bishops of the church asking them "to take such steps as are necessary to open negotiations with churches similar in polity and doctrine, looking toward permanent union," and naming "especially the Methodist Protestant, Evangelical, United Evangelical, and Cumberland Presbyterian churches." The leaders of the church favor the union proposed, and it is believed that a practical basis for uniting some of these bodies will be reached. See METHODIST PROTESTANT CHURCH and CUMBERLAND PRESBYTERIAN CHURCH.

UNITED EVANGELICAL CHURCH dates from 1891, having originated in the division of the Evangelical Association (*q.v.*) that arose owing to the disputes of rival conferences. The general conference of the church, which holds quadrennial sessions, met in October, 1902 in Williamsport, Pa. Reports from the various denominational activities were heard, none of greater interest than that of the foreign missionary work which has been recently begun in China, centering around the capital of Hunan. The Rev. H. B. Hartzler, D.D., of Harrisburg, and Rev. W. F. Heil, of Allentown, were chosen as bishops for the next four years. In 1906 the general conference will be held in Cedar Rapids, Ia. The United Evangelical Church has a publishing house in Harrisburg, Pa., and is represented by the *Evangelical*. Under its auspices are three educational institutions. During the year 1902 Central Pennsylvania and Albright colleges for greater efficiency were consolidated under the name Albright College. There were, in 1902, ten conferences in the denomination, which is strongest in Pennsylvania, where more than two-thirds of its constituency is found, comprising 63,390 members, a gain of 867 over last year; 501 ministers and 214 local preachers, and 979 organized congregations, 820 of which possess church edifices. The value of all church property aggregates $2,749,408. Contributions for missions were $71,181; for the construction and repair of churches and parsonages, $117,167. The Sunday schools number 887, and are

attended by 11,349 officers and teachers, and 83,381 scholars. The United Evangelical Church was one of the denominations named in the movement for federation that originated among members of the United Brethren in Christ (*q.v.*).

UNITED PRESBYTERIAN CHURCH OF NORTH AMERICA was established in 1858 by a union of Associate and Associate Reformed elements. It now has a total membership of 132,476, including 117,874 in America, a gain over 1901 of more than 2000 for the whole church and of less than 1000 for America. There are 1026 ministers, 88 licentiates, and 67 theological students; 995 congregations, 955 of which possess church buildings, and 370, parsonages. The total value of denominational property—educational institutions, not including those in India and Egypt, churches, and parsonages—is about $9,750,000. A substantial gain was made in the last year in the amount of contributions for all purposes, the aggregate being $1,874,514, as against $1,751,291 for 1901. The Sunday schools number 1226, having 13,498 officers and teachers, and 120,133 scholars. The United Presbyterian Church comprises 13 synods and 68 presbyteries. Under the auspices of the denomination are two theological seminaries in America, one in India, and one in Egypt; six colleges, including an institution, in Knoxville, Tenn., for colored students, and in Egypt and India, one each. The foreign mission work is carried on through 637 stations, 24 new stations having been organized last year. The church is represented by the *United Presbyterian*, its publishing interests comprising four weekly papers, a missionary magazine, and three papers for Sunday schools and Young People's societies. The publishing house is in Pittsburg, Pa. In 1902 the general assembly met in Allegheny, Pa., beginning May 28; its next session will convene in Tarkio, Mo., May, 1903. Stated clerk, Rev. A. G. Wallace, D.D., Sewickley, Pa.

UNITED SOCIETY OF CHRISTIAN ENDEAVOR. See CHRISTIAN ENDEAVOR, UNITED SOCIETY OF.

UNITED SOCIETY OF FREE BAPTIST YOUNG PEOPLE. See FREE BAPTIST YOUNG PEOPLE, UNITED SOCIETY OF.

UNITED STATES. The total area belonging to, or under the jurisdiction of, the United States is estimated by the United States Coast and Geodetic Survey to be 3,731,900 square miles, divided as follows: United States, 3,025,600; Alaska, 577,390; Philippine Islands, 119,000; Hawaiian Islands, 6250; Porto Rico, 3530; Guam, Tutuila, with other Samoan islands, and Midway Island, 220. The total population, including Alaska and Hawaii but excluding Porto Rico and the Philippines, was given by the census of 1900 at 76,304,709. The population of the United States, exclusive of Hawaii, Porto Rico, and the Philippines, was estimated by the government actuary on June 1, 1902, at 78,833,000, while the population including these islands was given at 88,003,000.

Agriculture.—The year 1902, in marked contrast with 1901, was a year of plentiful harvests. The estimates of the Agricultural Department for 1899 were much below the census figures for the same year. There is good reason for believing that the census figures were nearer the truth. The department's figures for 1902 also appear to be much too small, so it may be fairly concluded that the 1902 crop was the largest yet recorded. Only in the case of wheat and rye did the yield of 1902 fall below that of 1901. The following table gives the yield and value of the principal grain crops of the United States in 1901 and 1902:

Crop.	1902			1901		
	Yield in Bushels.	Average Price Per Bushel, Cents.	Value.	Yield in Bushels.	Average Price Per Bushel, Cents.	Value.
Wheat	670,063,008	63	$422,139,595	748,460,218	62.4	$467,039,176
Rye	33,630,592	51.4	17,286,124	39,344,830	55.7	21,915,070
Oats	987,842,712	30.7	303,267,712	736,808,724	39.9	293,986,680
Barley	134,954,023	45.9	61,943,896	109,932,924	45.2	49,689,661
Corn	2,523,648,312	40.3	1,017,030,269	1,522,519,891	60.5	921,124,534
Total	4,350,188,647	.....	$1,821,667,596	3,157,066,587	.....	$1,753,755,141

The statistician of the Department of Agriculture estimated the growth of cotton in the United States in the year 1902-03 at 10,417,000 bales, of an average weight of 490.7 pounds. The acreage was estimated at 27,114,103 acres, a reduction of 764,227 acres or 2.74 per cent. See article AGRICULTURE, the separate articles on crops and the paragraphs on Agriculture in the articles on the States.

Industries.—See MINERAL PRODUCTION; MANUFACTURES; IRON AND STEEL; COTTON INDUSTRY; SUGAR INDUSTRY; RAILWAYS; SHIPBUILDING; SILK INDUSTRY; WOOL.

Foreign Commerce.—The imports and exports of the United States for 1892, 1901 and 1902, by countries, are shown in the table on pages 690 and 691, compiled from figures issued by the Treasury Department.

Compared with 1901, the year 1902 shows a falling off of $104,673,925 in exports and a gain of $88,901,043 in imports, making a decline in all trade of $15,772,882. The decrease in exports was due first to the short grain crops of 1901, and secondly to the remarkable activity in domestic industries, which absorbed a larger proportion of the domestic output and made necessary larger imports. The falling off in corn shipments was most striking. The exports for 1902 were only 18,723,960 bushels valued at $11,567,976 against 102,359,089 bushels valued at $50,361,388 in 1901, and 206,135,233 bushels valued at $82,728,589 in 1899. Wheat exports fell from 266,286,-902 bushels worth $201,458,506 to 211,945,731 bushels worth $165,356,005; oats fell from 25,929,043 bushels valued at $9,106,199 to 5,976,703 bushels valued at $2,552,962. In 1898 exports of oats were 49,919,866 bushels valued at $16,046,888. Exports of live stock were as follows: Cattle, 454,590 valued at $36,606,204 in 1901, and 327,118 valued at $24,301,969 in 1902; horses, 99,809 valued at $10,037,204 in 1901, 60,694 valued at $6,086,012 in 1902; mules, 25,053, $2,267,262 in 1901, 16,306, $1,744,192 in 1902; sheep, 432,419, $2,514,766 in 1901, 235,497, $1,492,484. Total exports of animals declined from $51,825,944 in 1901 to $33,839,293 in 1902, a decrease of $17,986,651. Exports of all provisions also showed a very great falling off, from $206,931,309 in 1901 to $182,628,790 in 1902, a decrease of $24,302,519. The items of provisions showing the greatest decline were bacon, $39,402,500 in 1901, $27,101,431 in 1902; pork, $13,479,421 in 1901, $12,169,585 in 1902; lard, $51,626,346 in 1901, $50,869,699 in 1902; oleo and oleomargarine, $13,451,234 in 1901, $11,124,850 in 1902; butter, $4,184,966 in 1901, $1,681,723 in 1902; cheese, $3,006,344 in 1901, $2,109,347 in 1902. Exports of raw cotton, decreased $10,494,158; iron and steel, $4,642,539; vegetable oils, $2,854,462. The principal growth in exports occurred in the case of copper (other than ore), which showed an increase of $11,950,699. This was due to the decrease in prices which followed the failure of the Amalgamated Copper Company to limit productions and hold prices above the normal level. Exports of manufactured cotton increased $7,232,152, largely on account of the restoration of normal trade conditions in China, where most of the cheaper grades of American cottons are sold. Exports of unmanufactured tobacco increased $7,779,383, and exports of fruit and nuts increased $6,974,136. The following table gives the principal exports of the United States for 1901 and 1902:

LEADING EXPORTS OF THE UNITED STATES.

	1901	1902
Animals	$51,825,944	$33,839,293
Breadstuffs	276,404,299	195,717,728
Chemicals, drugs, etc	14,267,110	14,437,367
Coal	22,022,910	18,229,009
Copper and manufactures of	33,534,899	45,485,598
Cotton	300,985,383	290,491,225
Cotton manufactures	26,024,755	33,274,907
Fish	6,258,417	7,536,402
Fruit and nuts	8,279,213	15,253,349
Iron and steel (not ore)	102,534,575	97,892,036
Leather and manufactures of	28,949,449	30,551,072
Naval stores	11,825,856	13,299,861
Oil cake and oil-cake meals	19,188,838	20,644,172
Oil, mineral (petroleum)	72,784,712	68,597,143
" vegetable	19,057,389	16,202,927
Paraffin and paraffin wax	7,959,907	8,398,450
Provisions	206,931,309	182,628,790
Paper and manufactures of	7,324,073	7,251,517
Tobacco, unmanufactured	26,861,122	34,640,515
" manufactured	5,377,189	5,523,234
Carriages	10,861,401	10,081,319
Wood and manufactures of	49,337,947	51,836,458
Total	$1,308,596,707	$1,101,812,372
All others	129,481,944	231,476,119
Grand total	$1,438,078,651	$1,333,288,491

The principal decline in imports occurred in sugar, which decreased $18,195,623; coffee, $5,998,380, and copper ore and regulus, $5,996,853. The principal increase in value of imports occurred in iron and steel (not ore), which increased $21,073,811; unmanufactured flax, hemp, etc., increased $10,711,137; cotton manufactures, $7,934,-329; raw silk, $7,580,045; manufactured silk, $6,307,271; tea, $5,826,095; wood and manufactures of, $5,867,908; wool, unmanufactured, $5,572,795, and wool, manufactured, $3,167,044. In view of the disturbances in the anthracite coal region, it is interesting to note that exports of coal fell off only $3,793,901, while imports gained only $1,724,485, showing that the disturbance to the coal trade on account of the

Countries.	Imports by Countries.			Exports by Countries.		
	1892	1901	1902	1892	1901	1902
EUROPE.	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*
Austria-Hungary	7,857,101	10,042,401	10,093,346	1,323,343	6,843,900	6,672,580
Azores, and Madeira Islands	27,965	27,071	15,523	283,868	318,329	348,052
Belgium	10,145,551	14,919,071	17,912,084	35,154,450	51,444,315	43,515,112
Denmark	218,611	661,246	68,494	7,451,398	18,480,816	14,812,900
France	71,917,973	81,314,609	87,895,253	61,820,255	78,405,972	70,497,327
Germany	87,178,464	99,970,098	111,999,904	98,578,047	184,678,723	174,264,495
Gibraltar	166,670	59,878	6,659	420,439	597,184	498,299
Greece	1,184,956	1,447,303	1,299,144	138,184	286,236	369,919
Greenland, Iceland, etc.	96,932	70,886	82,783	2,800	842	294
Italy	23,603,291	27,631,248	33,612,864	14,167,344	34,046,201	33,135,512
Malta, Gozo, etc	.....	16,083	20,680	.....	342,722	367,783
Netherlands	15,671,372	21,376,377	20,899,588	44,721,261	85,643,804	74,576,164
Portugal	2,154,154	3,641,452	3,229,813	5,757,140	4,544,088	2,915,897
Roumania	.....	289	65	27,958	39,509	138,635
Russia on Baltic and White Seas	2,940,210	5,530,927	7,058,885	3,869,404	4,919,790	11,038,140
Russia on Black Sea	1,915,761	1,705,193	739,784	445,352	1,585,067	2,376,650
Servia	22,686	30,129	33,149	.....	.....	.....
Spain	5,258,934	7,040,758	8,787,621	11,911,644	16,785,711	15,976,788
Sweden and Norway	3,929,890	3,582,217	4,193,307	5,091,808	11,088,391	9,530,137
Switzerland	13,835,184	16,035,278	19,864,767	7,803	232,336	203,357
Turkey in Europe	2,272,217	4,102,149	5,104,033	45,506	527,201	528,405
United Kingdom	167,280,272	155,291,551	180,249,114	472,664,565	598,766,799	523,773,397
Total Europe	417,678,194	454,496,214	513,780,860	763,882,569	1,099,574,016	985,539,843
NORTH AMERICA.						
Bermuda	650,349	499,932	557,924	970,133	1,394,059	1,445,464
British Honduras	196,379	268,869	289,359	428,836	832,932	786,159
Dominion of Canada:						
Nova Scotia, New Brunswick, etc.	5,629,505	6,320,373	9,113,390	3,501,019	6,230,243	6,210,010
Quebec, Ontario, etc.	27,766,981	30,122,563	36,959,765	34,275,103	93,094,193	98,552,407
British Columbia	2,533,970	8,883,198	6,451,018	1,788,285	8,168,307	6,390,618
Total Dominion of Canada	35,930,456	45,326,134	52,524,173	39,564,407	107,492,743	111,153,035
Newfoundland and Labrador	350,707	571,467	779,552	1,720,608	2,102,173	2,145,112
Central American States:						
Costa Rica	1,983,175	3,196,231	3,291,545	1,018,989	1,688,754	1,697,043
Guatemala	2,987,602	4,180,417	2,834,057	1,767,557	1,522,338	1,625,775
Honduras	710,947	1,269,229	1,136,220	537,932	1,109,546	969,963
Nicaragua	1,488,695	2,199,313	1,858,729	1,030,375	1,364,518	1,360,686
Salvador	2,359,272	1,111,414	583,459	1,096,240	799,191	868,329
Total Central American States	9,529,691	11,956,604	9,704,010	5,451,093	6,484,347	6,521,796
Mexico	29,413,875	35,280,232	42,730,823	16,391,274	36,744,034	42,370,444
Miquelon, Langley, etc.	52,233	50,567	14,225	313,304	191,602	191,674
West Indies:						
British	13,867,923	12,688,249	12,996,335	8,276,093	9,230,139	9,908,995
Cuba	78,228,542	46,663,796	48,619,588	22,244,878	27,007,024	23,081,623
Danish	491,610	699,379	458,071	646,021	686,482	638,839
Dutch	265,641	227,581	246,010	712,978	620,804	765,606
French	27,640	9,606	6,223	1,931,054	2,765,987	1,517,753
Haiti	2,238,586	1,127,641	1,301,168	5,344,848	1,956,343	2,275,393
Porto Rico a	3,846,651	.....	.....	2,535,127	.....	.....
Santo Domingo	2,219,866	3,361,319	2,738,367	1,166,880	1,700,371	1,399,615
Total West Indies	101,186,459	64,777,571	66,365,762	42,857,879	43,967,150	39,587,824
Total North America	177,310,149	158,731,376	172,965,828	107,697,534	199,239,040	204,201,508
SOUTH AMERICA.						
Argentina	5,312,122	9,455,634	10,396,873	4,856,343	11,117,521	9,808,529
Bolivia	.....	26	1,731	12,995	111,580	76,926
Brazil	101,649,752	79,350,725	71,583,086	11,888,975	11,136,101	11,155,565
Chile	3,665,331	9,236,009	7,155,839	3,507,529	4,809,244	3,753,222
Colombia	3,981,665	3,544,395	3,140,043	2,978,154	3,304,190	3,380,997
Ecuador	933,114	1,421,563	1,823,166	747,630	1,819,209	1,347,850
Falkland Islands	.....	.....	18,120	.....	1,008	333
Guiana—British	4,185,487	3,435,996	3,747,260	2,014,725	1,767,057	2,068,385
Dutch	794,714	1,351,110	1,043,497	337,345	538,847	538,649
French	23,065	44,048	33,348	118,038	251,023	277,182

Countries.	Imports by Countries.			Exports by Countries.		
	1892	1901	1902	1892	1901	1902
SOUTH AMERICA.—Con.	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*
Paraguay	.....	.....	3,890	.....	16,155	14,815
Peru	735,398	3,416,178	2,826,493	801,897	3,148,610	2,573,289
Uruguay	2,445,040	1,974,977	2,830,069	937,244	1,480,820	1,549,812
Venezuela	7,341,832	7,153,520	4,783,143	3,296,036	3,052,393	2,077,352
Total South America	131,067,520	120,384,181	109,386,558	31,496,911	42,553,758	38,622,906
ASIA.						
Aden	.....	1,560,501	2,070,230	.....	1,384,288	1,097,920
Chinese Empire	19,886,164	18,125,836	26,182,113	5,268,479	18,175,484	22,698,282
China—British	.....	822	18,451	.....	5,582	4,848
German	.....	.....	1,655	.....	2,271	87
Russian	.....	1,117	1,101	.....	703,138	421,163
East Indies—British	24,538,585	47,171,558	51,831,665	2,866,486	5,646,669	4,866,683
Dutch	7,547,499	15,343,948	14,212,864	987,524	2,210,963	1,597,299
French	.....	3,019	3,873	133,860	49,113	62,361
Portuguese	.....	.....	28	.....	.....	30
Hongkong	855,612	1,299,722	2,063,196	4,682,121	8,058,873	8,751,779
Japan	27,196,026	36,854,692	40,597,582	3,300,745	21,162,477	21,622,603
Corea	608	21,559	.....	.....	233,375	257,130
Russia—Asiatic	381,919	26,637	39,175	97,647	1,013,320	898,711
Turkey in Asia	3,081,553	4,092,386	4,667,123	143,913	157,903	223,250
All other Asia	86,920	591,846	534,119	292,108	265,267	82,951
Total Asia	83,574,886	125,093,643	142,223,175	17,772,883	59,068,723	62,585,097
OCEANIA.						
British Australasia	8,312,537	4,839,128	6,053,724	9,072,470	30,569,814	28,101,784
British Oceania	.....	1,391,246	1,533,707	.....	97,873	223,741
French Oceania	261,208	834,312	572,416	303,909	406,203	388,928
German Oceania	.....	11,652	25,354	.....	19,886	99,883
Spanish Oceania	.....	.....	.....	.....	16,925	6,952
Hawaii *b*	7,854,090	.....	.....	2,920,722	.....	.....
Philippine Islands	7,177,901	3,737,071	10,211,303	101,253	4,173,387	4,736,836
All other	.....	.....	9,433	.....	4,142	9,800
Total Oceania	23,605,736	10,813,409	18,405,937	12,398,354	35,288,230	33,567,924
AFRICA.						
British Africa	670,488	910,703	861,901	3,224,052	24,994,766	31,685,859
Canary Islands	25,468	39,385	128,255	175,970	281,972	597,547
French Africa	420,590	480,316	461,102	315,896	511,474	386,758
German Africa	.....	50	23	.....	8,792	2,669
Liberia	20,454	2,900	934	15,191	33,995	30,013
Madagascar	319,040	547	78	247,077	16,202	23,123
Portuguese Africa	18,567	6,659	11,359	67,091	2,469,695	2,516,841
Spanish Africa	.....	11,853	8,083	.....	363	2,266
Turkey in Africa	2,399,019	9,048,578	10,854,628	75,108	1,321,145	667,577
All other Africa	1,294,298	400,096	232,232	426,253	13,689	290,004
Total Africa	5,167,924	10,901,087	12,558,595	4,546,638	29,652,093	36,184,657
ALL OTHER COUNTRIES.						
British, all other *c*	2,447,167	.....	.....	564,085	.....	.....
Spanish, all other *d*	79,376	.....	.....	61,686	.....	.....
All other islands and ports *e*	3	.....	.....	.....	.....	.....
Total all other countries	2,526,546	.....	.....	625,771	.....	.....
Grand total	840,930,955	880,419,910	969,320,953	938,420,660	1,465,375,860	1,360,701,935
RECAPITULATION.						
Europe	417,678,194	454,496,214	513,780,860	763,882,569	1,099,574,016	985,539,843
North America	177,310,149	158,731,376	172,965,828	107,697,534	199,239,040	204,201,508
South America	131,067,520	120,384,181	109,386,558	31,496,911	42,553,758	38,622,906
Asia	83,574,886	125,093,643	142,223,175	17,772,883	59,068,723	62,585,097
Oceania	23,605,736	10,813,409	18,405,937	12,398,354	35,288,230	33,567,924
Africa	5,167,924	10,901,087	12,558,595	4,546,638	29,652,093	36,184,657
All other countries	2,526,546	.....	.....	625,771	.....	.....

a The commerce with Porto Rico is not included in the foreign commerce of the United States after June 30, 1900.

b The commerce of Hawaii is not included in the foreign commerce of the United States after June 30, 1900.

c Previous to 1896 includes Malta, Gozo, etc.; Falkland Islands, Aden, Aukland, Fiji, etc.

d Previous to 1896 includes Spanish Oceania, German Oceania and Africa.

e Previous to 1896 includes Tonga, Samoa, etc.

strike was not so great for the entire year as was reported. The total imports of merchandise for 1902 amounted to $969,320,953, of which $408,641,993 were free and $560,678,960 were dutiable. Merchandise to the value of $63,586,879 was brought in by cars and land vehicles. The following table gives the principal imports of the United States for 1901 and 1902:

LEADING IMPORTS OF THE UNITED STATES.

	1901	1902
Chemicals, drugs, etc.	$56,772,989	$59,930,226
Coal, anthracite	1,844	373,517
" bituminous	5,291,429	7,016,274
Cocoa	6,720,814	7,262,100
Coffee	70,156,044	64,157,664
Copper ore and regulus	14,692,645	8,696,780
" pigs, bars, ingots, etc.	11,812,216	13,051,159
Cotton, unmanufactured	8,765,891	10,801,166
" manufactured	41,019,955	48,954,264
Earthen, stone, and china ware	9,816,074	9,838,426
Feathers, etc.	4,740,838	4,805,704
Fibres and textile grasses, unmanufactured	25,118,025	35,829,162
" " " " manufactured	36,405,407	39,565,242
Fish	7,856,564	8,271,855
Fruits and nuts	20,177,862	23,128,837
Furs and fur skins, undressed	7,823,028	9,571,960
" " " " manufactured	4,950,412	6,644,931
Glass and glassware	5,671,032	6,330,887
Hides and skins	55,566,012	57,732,397
India rubber and gutta percha	28,245,025	25,516,269
Iron ore	1,659,273	2,583,077
Iron and steel (not ore)	20,395,015	41,468,826
Jewelry	27,468,265	29,129,752
Leather and manufactures of	11,375,939	11,211,770
Metals and metal compositions	6,108,096	6,758,685
Oils, mineral and vegetable	7,876,572	11,861,476
Silk, unmanufactured	40,267,786	47,847,831
" manufactured	29,260,550	35,567,821
Spirits, wines, etc.	15,198,117	15,845,604
Sugar and molasses	77,835,649	60,863,749
Tea	8,744,190	14,570,285
Tin in bars, blocks, etc.	19,024,761	21,263,337
Tobacco, unmanufactured	16,190,526	16,221,416
" manufactured	2,589,903	2,694,632
Vegetables	4,730,245	6,747,215
Wood, etc., unmanufactured	17,689,387	22,050,952
" " manufactured	4,331,219	5,837,572
Wool and hair, unmanufactured	14,017,432	19,590,227
" " " manufactured	15,604,730	18,771,774
Total	$762,031,771	$831,363,840
All others	118,378,139	137,957,113
Grand total	$880,419,910	$969,320,953

The movements of gold for 1902 were as follows: Imports, $44,193,317; exports, $36,030,591, making a net import of $8,162,726. The movements of silver were: Imports, $26,402,935; exports, $49,272,954, making a net export of $22,870,019.

The imports of merchandise for 1902 were $391,380,982 less than exports. This, taken with the excess of silver exports and the excess of gold imports, gives a net excess of exports over imports amounting to $376,673,689.

The amount of merchandise carried by American steam vessels for 1902 was: Imports, $102,654,948; exports, $73,158,215. The amount carried by American sailing vessels: Imports, $13,000,767; exports, $11,256,875. The value carried by land vehicles was: Imports, $63,586,879; exports, $120,086,835. The following table gives the amount of merchandise, both imports and exports, carried by foreign vessels:

NATIONALITY OF VESSELS.	Imports.		Exports.	
	Steam.	Sailing.	Steam.	Sailing.
Belgian	$17,305,228	.....	$14,954,685	.....
British	464,213,088	$16,526,130	732,775,073	$33,443,408
Dutch	31,772,032	83,598	41,255,023	529,236
French	59,848,642	1,051,620	18,796,663	7,886,748
German	114,403,982	997,911	138,014,055	8,146,849
Italian	11,330,099	1,191,955	11,970,197	3,451,899
Norwegian	26,899,600	1,748,347	20,960,954	5,647,752
All others	81,763,156	3,190,868	81,763,156	3,190,868
Total foreign	$767,725,999	$22,352,360	$1,066,489,806	$62,296,760

Domestic Commerce.—Notwithstanding the poor crops of 1901, which greatly decreased production of breadstuffs and animals; together with the anthracite coal strike, which not only curtailed exports of coal, but greatly hampered the production of iron and steel, and many other manufactured articles, the domestic commerce of the United States for the year 1902 shows an enormous increase over the year 1901. The five packing centres of the West reported 5,031,308 cattle, 13,858,344 hogs, and 6,194,299 sheep slaughtered during the year 1902, making a total of 25,083,951 head of these three more important kinds of live stock. The number of cattle and the number of sheep slaughtered were the largest on record, but not since 1897 has the number of hogs slaughtered fallen so low. The receipts of wheat at eight interior markets, representing the spring and winter wheat sections, compare favorably with those of 1901. Receipts for the last five months of 1902 were 114,212,150 bushels as against 123,191,695 bushels for 1901. The decrease was more than compensated by the increase in the receipts of winter wheat, which amounted to 68,579,165 bushels in 1902, as against 38,201,784 bushels in 1901. The total receipts at the eight inland markets up to January 1, 1903, were 182,791,315 bushels as against 161,393,497 for the previous year, showing a gain of 21,397,836 bushels.

For the calendar year 1902 the total freight movement on the Great Lakes stood as follows: Receipts, 54,074,729 net tons, as against 45,007,019 net tons for 1901; iron ore and minerals constituted more than half the total freight tonnage of 1902, being 27,894,424 gross tons, as against 20,770,447 gross tons in 1901. Coal amounted to 8,256,117 net tons in 1902, as against 9,205,764 net tons in 1901. In the coasting trade of the Great Lakes for 1902, approximately 75,000,000 tons arrived at and cleared from ports of the lakes. The season's traffic for the Sault Ste. Marie ship-canal amounted to 35,961,146 net tons, as against 38,403,065 net tons in 1901.

The receipts of grain at New York during 1902, including flour, reduced to bushels, amounted to 114,926,823 bushels, in contrast with 136,783,751 bushels in 1901. In general, the same decrease may be noticed in the grain receipts at all the Atlantic ports, indicating not merely a decrease in yield of grain crops in 1901, but showing the sharp competition of the home market for our surplus agricultural products. Coal receipts at Boston for the calendar year 1902 were 4,280,209 tons, as compared with 4,812,419 tons in 1901. Of these amounts anthracite made up 2,163,558 tons in 1901 and only 1,054,170 tons in 1902. The Southern cotton movement to December 31 amounted to 6,773,598 bales, compared with 6,689,315 bales for the same period in 1901. The Southern mills used 820,500 bales. Receipts of naval stores at Southern primary markets were: Resin, 1,454,168 barrels, as against 1,600,836 barrels for 1901; spirits of turpentine, 461,824 casks, as compared with 505,937 casks in 1901.

Anthracite coal shipments for 1902 amounted to 31,200,940 tons, compared with 53,483,454 tons in 1901, and 45,107,493 tons in 1900. Some idea of the growth in volume of railway traffic may be gained by comparison of the number of cars handled by the thirty-eight different car service associations throughout the country, though sometimes not more than one-third of the cars actually handled are reported. The returns for 1902 reported 24,662,247 cars handled, as against 13,408,864 cars in 1901.

The commerce of the United States with its insular possessions increased considerably during 1902. Imports of merchandise from these islands for 1901 and 1902 were: Hawaii, $27,012,866 and $32,156,611; Porto Rico, $8,751,751 and $12,029,090; Philippine Islands, $3,737,071 and $10,211,303. The exports for the same years were: Porto Rico, $6,958,677 and $9,530,548; Philippines, $4,158,699 and $4,728,555. Exports to Hawaii for the entire years are not available, but for the last six months of each year they were $5,803,758 and $5,308,182.

Navigation.—The report of the commissioner of navigation for 1902 shows that the documented tonnage of the United States on June 30, 1902, was the largest in the history of the country. Up to that time the tonnage for the year 1861, which amounted to 5,539,813 tons, was the highest record of American shipping. In 1902 the total tonnage was 5,797,902 tons, of which 873,235 tons were engaged in foreign trade; 4,858,714 in the coasting trade, and 65,593 tons in the fisheries. Of the whole amount 2,621,028 tons were sail and 3,176,874 tons were steam vessels. The tonnage registered for the foreign trade and whale fisheries declined slightly (6574 tons) during 1902, but this was more than offset by the increased efficiency of vessels. Registered steel steam tonnage increased by 31,518 tons, and the average size of steamers increased over 10 per cent. The percentage of exports and imports carried in American vessels in 1902 was 8.8 per cent., as compared with 8.2 per cent. for 1901.

The following table shows the geographical distribution and motive power of United States shipping in 1901 and 1902, and the construction for the two years.

COMPARISON OF 1901 AND 1902.

	1901		1902	
	Number.	Gross Tonnage.	Number.	Gross Tonnage.
GEOGRAPHICAL DISTRIBUTION.				
Atlantic and Gulf coasts	16,744	2,849,342	17,040	2,978,876
Porto Rico	25	5,297	42	6,180
Pacific Coast	2,387	676,682	2,492	741,825
Hawaiian Islands	64	37,149	61	32,386
Northern lakes	3,253	1,706,294	3,172	1,816,511
Western rivers	1,584	249,454	1,466	222,124
Total	24,057	5,524,218	24,273	5,797,902
MOTIVE POWER.				
Sail	16,643	2,608,265	16,546	2,621,028
Steam	7,414	2,920,953	7,727	3,176,874
Canal boats and barges	3,412	669,908	3,473	679,180
CONSTRUCTION DURING THE YEAR.				
Atlantic and Gulf coasts	823	236,948	973	237,083
Pacific Coast	271	54,568	224	53,059
Northern lakes	175	169,058	133	168,873
Western rivers	311	22,886	161	9,836
Total	1,580	483,489	1,491	468,831
MOTIVE POWER.				
Sail	526	126,165	581	97,698
Steam	506	273,591	579	308,178
Canal boats and barges	548	83,733	331	62,955
Total	1,580	483,489	1,491	468,831

Posts.—The report of the postmaster-general for the fiscal year ending June 30, 1902, showed that the total receipts during the year had been $121,848,047.26, and the expenditures $124,785,697.07, leaving a deficit of $2,937,649.81. As compared with the previous years the receipts increased $10,216,853.87, and the expenses $9,231,776.67, diminishing the deficit by $986,077.67. Among the recommendations made by the postmaster-general were that postal checks be authorized for sums of $2 and less, in order to obviate expense and inconvenience to the poorer classes and those living in the rural districts; that for the convenience of general business interests, a return envelope be authorized on which the postage could be guaranteed by the original sender; that free delivery be extended to towns of not less than 5000 population and those returning not less than $5000 annual postal receipts; and that the interstate commerce law be amended to prohibit telegraph and express companies from aiding such fraudulent schemes as are in violation of the postal laws. It was further recommended in view of the increased postal exchanges with Europe, that the minimum foreign letter rate of five cents be lowered. Much attention was also devoted by the postmaster-general to the question of second-rate mail matter. This mail matter during the fiscal year 1902 weighed 488,246,903 pounds out of a total of 745,742,872 pounds carried. But while the revenues from all mail carried amounted to $116,728,644, the revenue from the second-class matter, aggregating in weight about 65 per cent. of the total, was only $4,541,523.59, or about 4 per cent. of the postal revenues proper. The cost, it was estimated, of carrying second-class mails was 4 cents a pound, but under the second-class privilege, mail was carried for 1 cent a pound, entailing a loss to the government and a subsidy to the publisher of 3 cents a pound. The postmaster-general recommended, therefore, that except in the case of daily, tri-weekly, semi-weekly and weekly newspapers, periodical literature in future be charged at least the cost of its carriage; that is, 4 cents a pound instead of 1 cent. Early in the year 1902 three important events connected with the administration of the Postoffice Department took place. The first was the refusal of President Roosevelt to appoint a negro as postmaster in a Georgia office on the ground that a negro would be obnoxious to the patrons of the office. The second was the announcement by Postmaster-General Payne that fourth-class postmasters would be included under the civil service and could be removed only for cause. This was the most important development of civil service during the year. The other event was the presentation of a petition asking for the reduction of letter postage to one cent, and the relief from the abuse of privileges accorded to second-class matter.

Rural Free Delivery.—Rural free delivery was begun as an experiment in 1897, with an appropriation of $40,000 for the establishment of 44 routes. In 1902, $3,993,740 was appropriated, and up to November, 1902, 11,650 routes had been established covering 270,000 miles of country roads and serving about 7,000,000 of the

strictly rural population of the United States. The area covered was fully 300,000 square miles, and it was estimated by the department that about 700,000 square miles more, or one-third of the country's area exclusive of Alaska, might with advantage be embraced in the service. It was estimated that the initial annual cost of the service when completed would approximate $24,000,000, and would entail a deficit of from $8,000,000 to $10,000,000; but that the increased revenues received would, within a few years, entirely support the service. In support of this contention, it was noted that wherever free rural delivery had been instituted, the increase in the revenues had risen from 2 per cent. to 8 per cent. or 10 per cent. annually; but it was said that even if this were not so, the advantages to those served were sufficient to compensate for a deficiency. Circulars, newspapers and periodicals reached the farmer in much greater number; he was able to ascertain the condition of the market, and so advantageously to sell or withhold his produce, and the tangible value of this might be estimated from the fact that the value of farm lands along the free routes had uniformly enhanced not less than 5 per cent. The service, the postmaster-general asserted, had proved immensely popular, and some 25,000 petitions for the establishment of extra routes had been filed. Additional appropriations by Congress were therefore asked.

Army.—The secretary of war issued an order, May 31, 1902, further reducing the strength of the army to 66,497 men. On October 24, 1902, the enlisted force was fixed at 59,866, or practically the minimum limit (59,131) allowed by Congress. This order when fully executed leaves the distribution of the enlisted force as follows: In the Philippines, 13,480; coast artillery in the United States, Cuba, and Hawaii, 13,298; field artillery in the United States, 3,320; cavalry in the United States, 8,540; infantry in the United States, 16,645; engineers in the United States, 866; staff departments, 2877; nine bands, 300; infantry in Pekin, 150; and infantry in Alaska, 390. Besides this force there would be, under existing law, the Porto Rican provisional regiment and the Philippine scouts. The secretary of war recommended in his annual report that the latter be continued, as their knowledge of the Philippine people and country rendered them of great value, and, since there was no longer occasion for a special and peculiar force in Porto Rico, that the former be discontinued and at the same time that the right of enlistment in the regular army be extended to the citizens of Porto Rico. The total strength and distribution of the army, on October 15, 1902, just previous to the issuance of the final army reduction order, were as follows:

Country.	Officers.	Enlisted Men.	Hospital Corps.	Total.
United States	2,476	44,163	1,868	48,507
Philippine Islands	1,039	19,800	1,594	22,433
Cuba	26	819	39	884
Porto Rico	11	228	37	276
Hawaiian Islands	9	198	15	222
China	2	131	5	138
Alaska	23	664	40	727
Total	3,586	66,003	3,598	73,187

In addition there were the officers and men of the Porto Rico provisional regiment, numbering 869, the Philippine scouts, numbering 5178, and the volunteer surgeons under orders for discharge, numbering 182.

Navy.—As shown by the report of the secretary of the navy for 1902, the only vessels accepted by the department, over and above those finally or preliminarily accepted in the year previous, were the battleship *Illinois*, 11,525 tons, the torpedo boats, *Thornton, Wilkes,* and *De Long,* the torpedo-boat destroyers, *Decatur, Perry, Preble, Barry, Chauncey, Dale, Paul Jones, Truxton, Whipple,* and *Worden,* and the monitor *Arkansas.* The construction of vessels authorized, the secretary found, had been unduly delayed. Battleships were from 10 to 29 months behindhand, protected cruisers from 6 to 18 months, and monitors from 16 to 19 months. The non-delivery of structural steel and the dearth of skilled labor were usually assigned as the causes of this. There were under construction on June 30, 1902, 8 battleships, 6 armored cruisers, 9 protected cruisers, 4 monitors, 13 torpedo-boat destroyers, 7 torpedo boats, and 7 submarine torpedo boats. The secretary had furthermore allotted the construction of the two battleships authorized by the congressional act of July 1, 1902, and specifications were in course of preparation for the two 14,500-ton cruisers and the two 1000-ton gunboats provided for in the same act.

See Manœuvres, Military and Naval; also Naval Development.

The secretary emphasized, as had his predecessors, the pressing need for more enlisted men, and especially for more officers. There was a deficiency of 577 officers, based upon the vessels actually in service, and by the end of four years it was esti-

mated that the deficiency would be 428 additional, or over 1000 in all. Hence the secretary earnestly recommended that the number of midshipmen at the Naval Academy be largely increased, and he recommended also that the present number of enlisted men authorized be increased from 28,000 to 31,000.

Census Office.—By an act approved March 6, 1902, the census office, temporarily instituted in the Department of the Interior, in accordance with an act of 1899 to provide for taking the twelfth census (1900), was made a permanent office. All employees in the temporary office, above the grade of unskilled laborers, were made eligible for permanent appointment, and when appointed are to be considered under the protection of the civil service acts. It was made the duty of the census office to collect statistics of manufactures decennially, beginning with 1905; to collect annually statistics of cotton production, and to issue bulletins thereon weekly from September to January inclusive; to collect annually statistics of births and deaths from such States and municipalities as possess satisfactory records; and to issue before July 1, 1904, instead of as provided by the act of 1899 before July 1, 1903, all the various special reports authorized by that act, including those relating to crime, pauperism, charity, municipal taxation, valuation, and indebtedness, public and semi-public utilities, and mining. By another act approved June 30, the census office was directed to compile all available facts with regard to the condition of irrigation, the area of land reclaimed, and the cost and value of existing irrigation works.

Crop Statistics Dispute.—The dispute between the census bureau and the Department of Agriculture concerning crop statistics attracted a great deal of attention. Mr. John Hyde, of the Department of Agriculture, expressed great surprise because the wheat estimates made by the census bureau for the year 1899 were so greatly in excess of the estimates made by the Department of Agriculture. A similar discrepancy was noted between the estimate of the census bureau and that of the internal revenue office with regard to the tobacco crop, the estimate of the census bureau being 200,000,000 pounds in excess of the returns made by the internal revenue office. The internal revenue people believed that the amount of tobacco raised upon which no tax was paid could not exceed more than 500,000 pounds. Making all allowance for shrinkage there remained a discrepancy of not less than 70,000,000 or 75,000,000 pounds. Mr. Hyde criticized the methods employed in the census bureau whereby clerks were paid according to the number of cards they tabulated. He thought that this premium for speed-work was a source of much error. He also indicated that the enumerators themselves had made serious errors in estimating the wheat crop by including four or five million acres of winter wheat, which had been winter killed and was therefore not harvested. He also thought the enumerators themselves were not able to master the details of gathering agricultural statistics in the short time occupied by the census. He strongly believed that the estimates of the Agricultural Department would be vindicated by examination.

In reply to these criticisms Mr. L. G. Powers, the agricultural statistician of the census bureau, said, with regard to the wheat acreage, that the bureau had been exceedingly careful to exclude all wheat acreage that had been winter killed. As to the speed-work of employees he thought that the checking system employed in the census bureau precluded any possibility of serious error from these sources. Whenever error was discovered, the original schedules were looked up and the matter was rectified. Mr. Powers expressed great willingness to have the methods of the census bureau examined thoroughly. It was attempted to reconcile the discrepancy between the census figures and the internal revenue figures as to the yield of tobacco. We export about 90,000,000 pounds of tobacco to England every year, and it is there subjected to so heavy a duty that every effort is made to eliminate all waste and unnecessary moisture. The tobacco is stemmed and carefully dried, and statisticians figured that there might possibly be 30,000,000 pounds shrinkage from this cause. Then, again, there is great loss in weight by shrinkage in the tobacco used for cigars and cigarettes, amounting to probably 30,000,000 pounds. Another source of error probably arises from over estimates of tobacco on hand in storehouses, made by the farmers to the census enumerators.

According to estimates based upon the census figures the per capita consumption of wheat in the United States for the years since 1899 must have been 5.2 bushels. This appears to be altogether too large. The excess of the census office figures over those of the Department of Agriculture on wheat acreage was 18 per cent.; on wheat production, 20 per cent. As the Department of Agriculture made a special investigation of wheat production in 1897 and as a result of it added materially to its estimated area, it seems quite possible that the estimates of the department came nearer the truth than did those of the census bureau. It is of the utmost importance that crop statistics should be accurate, and the Department of Agriculture took measures to obtain more complete and reliable figures.

For *Immigration, Pensions, Railways,* and *Lands, Public,* see the special articles on these subjects.

Diplomatic Service.—Many important changes occurred in the diplomatic service during the year, both among the ambassadors and ministers appointed by the United States to foreign courts, and among those appointed by foreign governments to the United States. As to the former, Andrew D. White, ambassador to Germany, announced his resignation on August 5, 1902, to take effect on November 7. He was succeeded by Charlemagne Tower, of Pennsylvania, who was appointed ambassador to Russia in 1899, while Robert S. McCormick, of Illinois, who, in 1901, replaced Addison C. Harris, of Illinois, as minister to Austria-Hungary, was appointed ambassador to Russia in place of Mr. Tower. Bellamy Storer, of Ohio, appointed minister to Spain in 1899, succeeded Robert S. McCormick as minister to Austria-Hungary. Arthur S. Hardy, of New Hampshire, appointed minister to Switzerland in 1901, succeeded Bellamy Storer as minister to Spain. Charles Page Bryan, of Illinois, minister to Brazil since 1898, was appointed to succeed A. S. Hardy as minister to Switzerland. Lloyd C. Griscom, of Pennsylvania, appointed minister to Persia in 1901, succeeded Alfred E. Buck, deceased, of Georgia, as minister to Japan. It will be noticed that with one exception, all these changes were made by promotion through the vacancy at

Country.	Accredited to the United States.	Accredited by the United States.	Appointed from	Date of Appointment.
	Ambassadors.			
Austria-Hungary	Mr. L. H. von Hengervár	Bellamy Storer	Ohio	1902
France	M. Jules Cambon¶	Horace Porter	New York	1897
Germany	Herr von Holleben§	Charlemagne Tower	Pennsylvania	1902
Great Britain	Rt. Hon. Sir Michael H. Herbert	Joseph H. Choate	New York	1899
Italy	Signor E. Mayor des Planches	George von L. Meyer	Massachusetts	1900
Mexico	Señor Manuel de Azpiroz	Powell Clayton	Arkansas	1897
Russia	Count Cassini	Robert S. McCormick	Illinois	1902
	Ministers Plenipotentiary or Ministers Resident.			
Argentine Republic	Señor Don Martin G. Mérou	William P. Lord	Oregon	1899
Belgium	Baron Ludovic Moncheur	Lawrence Townsend	Pennsylvania	1899
Bolivia	Señor Don F. E. Gauchalla	William B. Sorsby	Mississippi	1902
Brazil	Señor J. F. de Assis-Brasil	David E. Thompson	Nebraska	1902
Chile	Señor Don J. Walker-Martinez	Henry L. Wilson	Washington	1897
China	Sir Liang Chen Tung	Edwin H. Conger	Iowa	1898
Colombia	Señor Don J. Vicente Concha	Charles B. Hart	West Virginia	1897
Corea	Mr. Minhui Cho	Horace N. Allen	Ohio	1897
Costa Rica	Señor J. Don Bernardo Calvo	William L. Merry	California	1897
Cuba	Señor Don Gonzalo de Quesada	Herbert G. Squiers	New York	1902
Denmark	Mr. Constantin Brun	Laurits S. Swenson	Minnesota	1897
Dominican Republic	Mr. Henry G. H. Heath†	William F. Powell*	New Jersey	1897
Ecuador	Señor Don Luis Felipe Carbo	Archibald J. Sampson	Arizona	1897
Greece, Servia and Roumania		John B. Jackson	New Jersey	1902
Gautemala and Honduras	Señor Don Antonio L. Arriaga	Leslie Combs	Kentucky	1902
Haiti	Mr. J. N. Léger	William F. Powell	New Jersey	1897
Japan	Mr. Kogoro Takahira	Lloyd C. Griscom	Pennsylvania	1902
Liberia		John R. A. Crossland	Missouri	1902
Netherlands	Baron W. A. F. Gevers	Stanford Newel	Minnesota	1897
Nicaragua	Señor Don Louis F. Corea	William L. Merry	California	1897
Paraguay	General Isaac Khan	William R. Finch	Wisconsin	1897
Persia	General Isaac Khan	Richmond Pearson		
Peru	Mr. Manuel A. Calderon	Irving B. Dudley	California	1897
Portugal	Visconde de Alte	Francis B. Loomis	Ohio	1901
Salvador	Mr. Rafael Zaldivar	William L. Merry	California	1897
Siam	Phya Akharaj Varadhara	Hamilton King	Michigan	1898
Spain	Señor Don Emilio de Ogeda	Arthur S. Hardy	New Hampsh'e	1902
Sweden and Norway	Mr. C. Hauge‡	W. W. Thomas, Jr.	Maine	1897
Switzerland	Charles L. E. Lardy*	Charles Page Bryan	Illinois	1902
Turkey	Chékib Bey	John G. A. Leishman	Pennsylvania	1901
Uruguay	Señor Dr. L. A. de Herrera*	William R. Finch	Wisconsin	1897
Venezuela	Señor Don A. F. Pulido*	Herbert W. Bowen	New York	1901

*Chargé d'affaires. †Counselor in the absence of the chargé d'affaires.
‡Chargé d'affaires in the absence of the minister, Mr. A. Grip.
§Count A. von Quadt Wykradt-Isny, chargé d'affaires, assumed temporary charge of the embassy in December. ¶Succeeded by M. Jusserand in August, 1902.

Berlin, caused by the resignation of Andrew D. White. This series of promotions, by which a number of ambassadors or ministers were each appointed to an embassy of somewhat more importance, represented perhaps the first recognition of the merit system in the history of the United States diplomatic service. A new legation, created during the year, was that of minister to Cuba, to which office Herbert G. Squiers, of New York, was appointed on May 5, 1902. Among special or

diplomatic appointments made during the year was that of J. L. M. Curry as representative of the United States at the coronation of Alfonso XIII. of Spain on May 16, 1902, and an embassy, consisting of Whitelaw Reid, Gen. John M. Wilson, and Rear-Admiral John C. Watson, to represent the United States at the coronation of Edward VII., of England. To fill the vacancy among the representatives of the United States at the Hague International Arbitration Tribunal, Oscar S. Straus, formerly minister to Turkey, was appointed to succeed ex-President Benjamin Harrison, who died in 1901. The other representatives of the United States on the tribunal are Melville W. Fuller, chief-justice of the Supreme Court; John W. Griggs, ex-attorney-general of the United States, and George Gray, of the United States Circuit Court. The principal changes in the diplomatic corps accredited to Washington were the appointment by Great Britain of Sir Michael H. Herbert, formerly secretary of embassy at Paris, as the successor of Lord Pauncefote, who died May 24, 1902; the appointment, announced on August 22, of M. Jusserand to succeed M. Cambon as ambassador from France; the unofficially announced appointment of Sir Liang Chen Tung to succeed Mr. Wu Ting Fang as minister from China, and the retirement of Herr von Holleben as ambassador from Germany. A semi-diplomatic appointment of importance to the Philippines was that on August 28, of Monsignore Guidi, as the pope's apostolic delegate to the islands. During the year the United States legation at Vienna and the Austro-Hungarian legation at Washington were both raised to the rank of embassies. The preceding table shows the accredited diplomatic representatives of the United States to foreign courts and the representatives of foreign nations at Washington.

Revenues and Expenditures.—The following table, compiled from figures given by the secretary of the Treasury, shows the total revenues (by warrants) and the total expenditures of the federal government for the fiscal years 1901 and 1902:

REVENUES.

SOURCE.	1901	1902
Internal revenue	$307,180,663.77	$271,880,122.10
Customs	238,585,455.99	254,444,708.19
Profits on coinage, bullion deposits, etc	12,731,256.94	10,979,506.57
Tax on seal skins and rent of seal islands	232,655.75	231,821.20
Sales of Indian lands	1,493,321.24	1,775,832.63
Sales of Government property	450,698.49	829,314.15
Sales of public lands	2,965,119.65	4,144,122.78
District of Columbia	3,986,176.19	4,217,841.43
Navy pension, navy hospital, clothing and deposit funds	1,778,454.91	2,019,850.25
Fees—consular, letters patent, and land	3,414,933.49	4,085,229.87
Depredations on public lands	75,977.70	107,995.58
Customs fees, fines, penalties, etc	711,791.43	828,971.35
Judicial fees, fines, penalties, etc	324,078.33	334,233.95
Immigrant fund	585,082.70	747,217.15
Deposits for surveying public lands	247,258.90	316,579.23
Payment of interest by Pacific railways	1,316,516.62	1,564,554.71
Sales of lands and buildings	236,897.53	272,422.72
Tax on national banks	1,681,473.05	1,643,454.73
Soldiers' Home permanent fund	492,623.66	536,045.62
Prize money	434,968.36	20,000.00
Miscellaneous	1,166,626.37	854,021.49
Sales of ordnance material	703,054.42	330,438.53
Sales of old vessels	57,220.81	313,948.98
From sale of claim against Sioux City and Pacific Railroad Co	2,122,841.24	.....
Dividend paid by receivers of Union Pacific Railroad for account of Kansas Pacific	133 942.89	.....
Part payment Central Pacific Railroad indebtedness	4,576,247.10	.....
Postal service	111,631,193.39	121,848,047.26
Total receipts	$699,316,530.92	$684,326,280.47

EXPENDITURES.

	1901	1902
For the civil establishment, including foreign intercourse, public buildings, collecting the revenues, District of Columbia	$117,327,240.89	$111,067,171.39
For the military establishment, including rivers and harbors, forts, arsenals, sea-coast defenses, and expenses of the war with Spain and in the Philippines	144,615,697.20	112,272,216.08
For the naval establishment, including construction of new vessels, machinery, armament, equipment, improvement at navy yards, and expenses of the war with Spain and in the Philippines	60,506,978.47	67,803,128.24
For Indian service	10,896,073.35	10,049,584.86
For pensions	139,323,621.99	138,488,559.73
For interest on the public debt	32,342,979.04	29,108,044.82
For deficiency in postal revenues	4,954,762.21	2,402,152.52
For postal service	111,631,193.39	121,848,047.26
Total expenditures	$621,598,546.54	$593,038,904.90
Showing a surplus of	$77,717,984.38	$91,287,375.57




FOREIGN DIPLOMATS— Upper left) M. Jules Cambon. (Upper right) M. Jean A. A. J. Jusserand. (Lower left) The Late Lord Pauncefote. (Lower right) Sir Michael H. Herbert (*Photo by Alman*)

The revenues and expenditures for the fiscal year ending June 30, 1903, were estimated by the secretary of the Treasury as below:

Estimated Revenues		Estimated Expenditures.	
From customs	$300,000,000.00	For the civil establishment	$126,000,000.00
From internal revenue	222,000,000.00	For the military establishment	180,000,000.00
From miscellaneous service	40,000,000.00	For the naval establishment	85,000,000.00
From postal service	133,020,630.00	For the Indian service	12,000,000.00
		For pensions	138,000,000.00
Total estimated revenues	$694,020,630.00	For interest on the public debt	27,000,000.00
		For postal service	132,020,630.00
		Total estimated expenditures	$651,020,630.00
		Surplus	$43,000,000.00

Congressional Estimates and Appropriations.—The following table, condensed from those prepared by the clerks to the Senate and House Committees on Appropriations, shows (1) the estimates and total appropriations asked for for the fiscal year ending June 30, 1903; (2) the amount on the several estimates granted by Congress, and (3) the date on which the grants became law; (4) the appropriations made at the first session of the Fifty-sixth Congress, and (5) the appropriations made at the second session of the Fifty-sixth Congress:

Congressional Estimates and Appropriations.

Title.	First Session, Fifty-seventh Congress.			Fifty-sixth Congress.	
	Estimates for Year 1902-03.	Appropriations for Year 1902-03.		First Session.	Second Session.
		Date Approved.	Amount.	Appropriations for Year 1900-01.	Appropriations for Year 1901-02.
Agriculture	$5,509,540.00	June 3	$5,208,960.00	$4,023,500.00	$4,582,420.00
Army	99,289,982.03	June 30	91,530,136.41	114,220,095.55	115,734,089.10
Diplomatic and Consular	2,038,578.76	Mar. 22	1,957,925.69	1,771,168.76	1,849,428.76
District of Columbia	7,826,016.00	July 1	8,547,526.97	7,577,369.31	8,502,269.94
Fortification	16,399,308.60	June 6	7,298,955.00	7,383,618.00	7,364,011.00
Indian	7,124,271.09	May 27	9,143,902.58	8,197,989.24	9,747,471.09
Legislative, etc.	25,623,533.16	Apr. 28	25,398,381.50	24,175,652.53	24,594,968.85
Military Academy	898,812.42	June 28	2,627,324.42	674,306.67	772,653.68
Navy	98,910,984.63	July 1	78,678,963.13	65,140,916.67	78,101,791.00
Pension	139,846,480.00	Mar. 10	139,842,230.00	145,245,230.00	145,245,230.00
Post Office	134,731,576.00	Apr. 21	138,416,598.75	113,658,238.75	123,782,688.75
River and Harbor (a)	23,123,000.00	June 13	26,726,442.00	560,000.00	(a)
Sundry Civil (a)	57,604,715.78	June 28	60,125,359.13	65,419,915.45	61,795,908.21
Total	$618,927,098.47		$595,502,705.58	$557,948,010.93	$582,072,890.38
Urgent Deficiency, Indian Affairs, National Home, etc. Deficiency for prior years	30,000,000.00	July 1 July 1	20,838,134.22 7,201,777.20	15,688,330.61	193,500.00 15,723,946.94
Total	$648,927,098.47		$623,542,617.00	$573,636,341.54	$597,990,337.32
Miscellaneous	3,500,000.00		2,600,000.00	3,802,301.34	7,990,018.67
Total regular annual appropriations	$652,427,098.47		$626,142,617.00	$577,438,642.88	$605,980,355.99
Permanent annual appropriations	123,921,220.00		123,921,220.00	132,712,220.00	124,358,220.00
Grand total regular and permanent annual appropriations (b)	$776,348,318.47		$750,063,837.00	$710,150,862.88	$730,338,575.99
By the Isthmian Canal Act (c)			50,130,000.00		

(a) The River and Harbor bill failed to pass in 1901, but the sum of $7,046,623 was appropriated in the Sundry Civil Act of that year to carry out existing contracts. To the amount granted in the River and Harbor bill of 1902 should be properly added $5,489,377.50, included in the Sundry Civil Act and applicable to existing contracts; thus the entire amount voted for river and harbor improvements in 1902 was $32,495,199.50.

(b) In addition, contracts were authorized subject to future appropriations, amounting in 1901 to $4,224,640, and in 1902 to $259,373,215; of the latter sum, $18,306,000 was authorized by the Naval Act, $38,336,160 by the River and Harbor Act, $15,946,650 by the Public Buildings Act, and $180,000,000 by the Isthmian Canal Act.

(c) Of the sum granted under this act, $40,000,000 is contingent upon the purchase of the rights and purchase of the new Panama Canal Company. The remainder is only available when the isthmian canal route is chosen. For these reasons this appropriation has not been included in the total.

Amount of estimated revenues for fiscal year 1903	$507,500,000.00
Amount of estimated postal revenues for fiscal year 1903	132,020,630.00
Total estimated revenues for fiscal year 1903	$639,520,630.00
Total appropriations of Fifty-sixth Congress (first session, $710,150,862.88; second session, $730,338,575.99)	1,440,489,438.87
Total appropriations of first session of Fifty-seventh Congress	750,063,837.00

Currency.—For the production of gold and silver, see articles GOLD and SILVER. For foreign coins see COINS. The following table, prepared from figures given by the director of the mint, shows in detail the coinage of the United States for the calendar years 1901 and 1902:

DENOMINATIONS.	COINAGE FOR 1901.		COINAGE FOR 1902.	
	Pieces.	Value.	Pieces.	Value.
Gold:				
Double eagles	1,707,526	$34,150,520.00	1,784,879	$35,697,580.00
Eagles	4,603,616	46,036,160.00	552,013	5,520,130.00
Half eagles	4,264,040	21,320,200.00	1,111,562	5,557,810.00
Quarter eagles	91,323	228,307.50	133,733	334,332.50
Total gold	10,666,505	$101,735,187.50	3,582,187	$47,109,852.50
Silver:				
Standard dollars	22,566,813	$22,566,813.00	18,160,777	$18,160,777.00
Subsidiary:				
Half dollars	6.239,857	$3,119,928.50	8,909,447	$4,454,723.50
Quarter dollars	10,577,477	2,644,369.25	18,470,356	4,617,589.00
Dimes	25,073,500	2,507,350.00	27,950,777	2,795,077.70
Total subsidiary	41,890,834	$8,271,647.75	55,330,580	$11,867,390.20
Total silver	64,457,647	$30,838,460.75	73,491,357	$30,028,167.20
Five-cent nickel	26,480,213	$1,324,010.65	31,480,579	$1,574,028.95
One-cent bronze	79,611,143	796,111.43	87,376,722	873,769.22
Total minor	106,091,356	$2,120,122.08	118,857,301	$2,447,796.17
Total coinage	181,215,508	$134,693,770.33	195,930,845	$79,585,815.87

The following table shows the general stock of money in the United States at the end of the calendar years 1901 and 1902 and the amount in the treasury and in circulation December 31, 1902:

	Dec. 31, 1901.	Dec. 31, 1902.	Dec. 31, 1902.	Dec. 31, 1902.
	General Stock of Money in the U. S.	General Stock of Money in the U. S.	In Treasury.*	Money in Circulation.
Gold coin (including bullion in treasury)	$1,176,172,153	$1,246,876,715	$270,777,264	$629,680,632
Gold certificates†	.....	.....	.....	346,418,819
Standard silver dollars	530,732,617	548,098,168	6,217,202	78,310,334
Silver certificates†	.....	.....	.....	463,570,632
Subsidiary silver	91,975,381	100,769,875	6,419,206	94,350,669
Treasury notes of 1890	38,596,000	24,053.000	132,574	23,920,426
United States notes	346,681,016	346,681,016	2,910,158	343,770,858
Currency certificates, act of 1872†	.....	.....	.....	.....
National bank notes	360,289,726	384,929,784	16,251,253	368,678,531
Total	$2,544,446,893	$2,651,408,558	$302,707,657	$2,348,700,901

*Not including public money to the amount of $142,426,414.72 in national bank depositories.
†Cash is held in the treasury against these certificates, but is not included as government assets.

DEMAND LIABILITIES.

Notes outstanding against cash in Division of Redemption:			
Gold certificates		$383,564,069.00	
Silver certificates		468,957,000.00	
Treasury notes of 1890		24,053,000.00	
			$876,574,069.00
Other liabilities:			
National bank 5 per cent. fund		15,170,717.61	
Outstanding checks and drafts		7,368,268.83	
Disbursing officers' balances		56,334,272.83	
Post-Office Department account		8,459,747.37	
Miscellaneous items		2,764,744.70	
			90,097,751.34
Reserve fund fixed by law 1900	$150,000,000.00		
Available cash balance	214,409,380.29		
			364.409,380.29
Total			$1,331,081,200.63

CLASSIFICATION OF CASH IN TREASURY.

Cash reserve established by the Currency Act of 1900, held in Divisions of Issue and Redemption	.....	$150,000,000.00
Gold and silver coin and bullion held in Division of Redemption against outstanding gold and silver certificates and treasury notes	.....	876,574,069.00
General treasury fund:		
Cash in vaults	$154,290,532.91	
In national bank depositories	150,216,598.72	
		304,507,131.63
Total	.....	$1,331,081,200.63

The National Debt.—The amount and classification of the United States national debt at the end of the calendar years 1901 and 1902 was as follows:

	Dec. 31, 1901.	Dec. 31, 1902.
Interest bearing debt, at from 2 to 5 per cent., and redeemable variously from 1904 to 1930 inclusive	$943,279,210.00	$914,541,240.00
Matured and called non-interest bearing debt	1,339,790.26	1,255,710.26
Debt bearing no interest, treasury notes, etc.	388,612,563.88	395,777,109.63
Total gross debt (except as to notes, etc. offset by cash held)	$1,333,231,564.14	$1,311,574,059.89
Minus cash balance	321,603,278.63	364,409,380.29
Total net debt	$1,011,628,285.51	$947,164,679.60

Banks.—See BANKS—BANKING; NATIONAL BANKS; PRIVATE BANKS; SAVINGS BANKS; STATE BANKS; TRUST AND LOAN COMPANIES.

CONGRESS (First Session).—The first session of the Fifty-seventh Congress convened December 2, 1901, and adjourned July 1, 1902. The membership at the time of adjournment was: House, Republicans 199, Democrats 149, Populists 4, and Silverite 1; Senate, Republicans 56 and Democrats 32. Senator Frye, of Maine, was re-elected president pro tem. of the Senate, and David B. Henderson, of Iowa, re-elected speaker of the House of Representatives. In his annual message to Congress President Roosevelt eulogized the character of his predecessor, William McKinley, and advocated stringent legislation against anarchy (see paragraph Anarchy). In the matter of trusts the President commented upon the exceeding intricacy and delicacy of business practice and organization, and the necessity, in order not to impair existing prosperity, of legislating for corporations without prior prejudice and only after full knowledge of all the facts involved. He thought that it was clear that there should be federal supervision of interstate corporations, and that if this could not be done under the constitution, power should be acquired by a constitutional amendment. (For his recommendations with regard to labor, see LABOR LEGISLATION.) On the tariff question he said: "Nothing could be more unwise than to disturb the business interests of the country by any general tariff change." Prosperity had been attained under it, and the "doubt, apprehension, and uncertainty" of a shifting tariff would be inimical to commercial well-being. (See TRUSTS.) Nevertheless, conditional upon the cardinal principle that duties should not be reduced below a point that would cover the difference between the cost of labor in the United States and abroad, reciprocity treaties should be freely entered into for the enlargement of the United States foreign trade. A strong plea was made by the President for the extension of federal aid in irrigating the arid lands of the West. Great reservoirs should be built, and main-line canals, irrigating land hitherto uninhabitable; and the rights to and distribution of the water should be adjusted in conformity with State laws and without disturbing vested rights. For the insular possessions of the United States the President advised legislation as follows: An adjustment of the title to the public lands in Porto Rico; a cable to the Philippines and China via Hawaii; mining, banking, currency, land, and timber laws for the Philippines to the end of developing their natural resources without allowing "improper exploitation"; and the granting of reciprocity to Cuba, for every reason of honor, of expediency, and of morality. "No single great material work" which remained to be undertaken on this continent, the President asserted, was "of such consequence to the American people as the building of a canal across the isthmus connecting North and South America." And as Great Britain had conceded in the newly revised canal treaty all the material points contended for by the United States, it only remained for the Senate to ratify that treaty and for Congress to authorize the canal's construction. Other recommendations made by the President, were for rendering the interstate commerce law more effective, for providing for a more elastic currency, for the crea-

tion of a general army staff, for the increase of the naval armament and personnel and for the extension of the civil service.

A number of bills of large and far-reaching importance were passed by Congress, and several others of hardly less significance were left pending at adjournment. Speaking generally, the press seemed to think that, barring certain obviously political omissions and commissions, the session had been unusually businesslike and effective. A strong minority sentiment for tariff revision developed early in the session among the western Republicans, who believed that the existing protective tariff was unequal and unjust and was principally responsible for assisting the eastern manufacturers to keep prices up to an artificial standard which the western farmer was compelled to pay. This sentiment, showing itself particularly during the discussion on Cuban reciprocity, in which it was complicated by the small but active "beet sugar faction" continually threatened to wrest from the speaker and committee on rules their ordinarily unquestioned control of the House.

Among the important laws enacted by the Fifty-seventh Congress at its first session were: A bill providing for the gradual irrigation of the arid Western lands and setting aside public moneys for that purpose (see IRRIGATION); a bill authorizing the construction of an isthmian canal, preferably by the Panama route (see ISTHMIAN CANAL); a bill supplementary to the war revenue reduction act of March 2, 1901, repealing the remaining war taxes; a bill providing for the temporary government of the Philippines, ratifying and extending the authority and laws of the Philippine commission, and outlining a partially autonomous form of government to be established in the near future; a bill heavily taxing oleomargarine in the interests of the dairy farmers; a bill creating a permanent census bureau; a bill for the increase of the navy; a bill continuing the Chinese exclusion laws and extending them to the insular possessions of the United States (see LABOR LEGISLATION); a bill for the permanent establishment of the rural free delivery postal service; a bill extending the charters of national banks, and a river and harbor improvement bill carrying altogether $65,000,000, and a public buildings bill carrying appropriations of $20,000,000.

Of the bills which did not pass or were lost sight of in committee rooms nearly all were connected with the tariff or trust questions. Their failure was ascribed mainly to inter-party disagreement, accentuated by the approaching elections, in which congressmen would be dependent for re-election upon the opinions of their local constituencies. To please as many of these constituencies as possible, it was generally deemed desirable, in the case of doubtful bills, to pass them through one house and refer them to an inactive committee in the other; for in this way it might be implied as occasion demanded either that the bill was defeated or that it was on the verge of enactment. The Ship Subsidy Bill, for example, passed the Senate, but not the House; a proposal to amend the Constitution so as to provide for the direct election of Senators, passed the House, but not the Senate; the bill for the reduction of Cuban duties was amended by the House before passage so that the Senate would not accept it; bills passed the House alone for the admission as states of Arizona, New Mexico, and Oklahoma; for the amendment of the national bankruptcy law; for the extension of the eight-hour law; for the increase of salaries of Federal judges; for protecting the President against anarchistic attacks; for defining conspiracy and regulating the use of injunctions in labor disputes. Other measures of importance which passed the Senate but failed to secure the approval of the House were: Bills for creating a department of labor and commerce; for proposing an amendment to the Constitution regulating the succession to the Presidency; for protecting the President, the officers in the line of succession to the Presidency and foreign rulers against anarchistic attacks; a proposal to amend the Constitution so as to fix the date for the inauguration of the President on the last Thursday in April. The Senate refused to ratify the pending reciprocity treaties, no agreement was reached on a measure for the prevention of anarchy, and it became evident early in the session that no direct anti-trust, tariff revision, or currency bill would become law.

Various bills introduced or passed in Congress are noted in preceding or succeeding paragraphs of the article UNITED STATES. Reference should also be made to the general articles: BANKS—BANKING, BANKRUPTCY, CUBA, FINANCIAL REVIEW OF THE YEAR, IMMIGRATION, IRRIGATION, ISTHMIAN CANAL, LABOR LEGISLATION, PHILIPPINES, TRADE UNIONS, TRUSTS.

The second session of the Fifty-seventh Congress convened Tuesday, December 3. The President in his annual message recommended legislation for the public regulation and supervision of trusts and corporations. He earnestly recommended the subject to Congress with a view to the passing of a reasonable and effective law, and added that if the purpose mentioned could not be accomplished by such a law the Constitution ought to be amended so as to secure the necessary power. The reduction of the tariff as a means of reaching the evils of the trust would be

wholly ineffective, he thought. The President deprecated the destruction of the protective tariff or any violent or radical change therein, but advocated treatment of it from the sole standpoint of American business needs which could best be accomplished by reciprocity treaties, and suggested the appointment of a non-partisan commission of business experts to consider such treaties. Additional legislation he deemed desirable with regard to the monetary system, although no attempt ought to be made to reconstruct the financial system. After insisting on the need for fair treatment for labor and capital alike, the President recommended that a department of Commerce be created with a seat in the Cabinet. He urged reciprocity with Cuba and the conclusion of a convention with Great Britain for reciprocal trade with Newfoundland. He favored arbitration in place of war for the adjustment of international differences, vindicated the policy of holding the Philippines, and dwelt on the necessity for strengthening the navy as the surest way of preserving the present satisfactory relations with foreign Powers.

By the close of the year the only important measures that had made any headway in Congress were the bills to secure pure food and to admit Oklahoma to the Union as a State. The Hepburn pure food bill passed the House on December 19. Its purpose as stated in the title was to prevent the adulteration, misbranding and imitation of foods, beverages, candies, drugs, and condiments, and to regulate inter-State traffic therein. By the terms of the bill the secretary of agriculture was authorized to provide a bureau of chemistry to be charged with the inspection of food and drug products offered for sale. Traffic in adulterated articles was made a penal offense. United States district attorneys were directed upon receiving information that certain foods or drugs were adulterated to prosecute the guilty parties. The secretary of agriculture was authorized to fix the standards of food products when advisable and to determine the wholesomeness or unwholesomeness of preservatives and other substances added to foods. On December 3d the Senate committee on territories reported a bill for the admission of one new state to comprise the territory now included in Oklahoma and Indian Territories. As the end of the year approached it became evident that this measure was to be the subject of protracted debate. Other measures that were occupying the attention of Congress at the end of the year were bills to restrict trusts and trade combinations, to create a department of commerce and labor, the Cuban reciprocity treaty, and the treaty with Colombia with reference to the construction of the isthmian canal.

Anarchy.—The assassination of President McKinley in 1901 led to much discussion of legislative measures for the suppression of anarchism and anarchistic teaching. President Roosevelt in his first message to Congress, recommended that stringent legislation be enacted in order to avert such anarchistic crimes as had caused the death of his predecessor. The federal courts, he said, should have jurisdiction in such cases; all immigration laws should be re-drafted to debar anarchists, and, as anarchy is fundamentally "an offense against the law of nations," it should be so declared by international treaties. Immediately upon the organization of Congress, bills were introduced both in the Senate and in the House looking toward the suppression of anarchy and the proper safeguarding of public officials, especially the President of the United States. One of the most noteworthy suggestions relating to anarchy was that made by Senator Hoar, of Massachusetts, proposing that anarchists be banished to some far-away island of the sea, where they might be allowed to practice their ideas without harming anybody but themselves. The press generally, however, regarded Senator Hoar's idea as ridiculous and wholly chimerical. Both Houses of Congress proceeded to pass laws making the killing or the attempt to kill the President or any of his legally designated successors, a capital offense under the Federal law. The Senate measure had in addition a provision for the establishment of a Presidential body-guard of regular troops. A conference committee appointed to harmonize the differences in the two bills had made no report by the end of the year.

Chinese Exclusion.—See LABOR LEGISLATION.

For legislation on the Philippines see PHILIPPINES.

Cuban Reciprocity.—One of the most important measures before the Fifty-seventh Congress was a bill to reduce the customs duties on sugar and tobacco imported into the United States from Cuba. The scheme of granting tariff concessions to Cuba had been favored by President McKinley, who argued that we were under strong moral obligations to deal liberally with the Cubans in matters affecting their commercial relations with us. The interests opposed to the measure were the representatives of the American beet-sugar industry, the sugar-cane interests of Louisiana, the sugar interests of Hawaii, the agricultural and commercial interests of Porto Rico, and the American tobacco interests. They strenuously denied that any moral obligation was involved in the matter, or that Cuba was really in need of relief. The ultra protectionists in Congress opposed it, on the ground that it violated the essential principle of protection, which should be kept

intact. They asserted that its effect would be the crippling of the beet-sugar industry and at the same time redound to the benefit of German competitors and the "sugar trust." If concessions were found to be necessary they thought they should be in the form of a rebate of a certain percentage of the revenues from Cuban imports into the United States in return for a corresponding reduction of the duties on imports from articles imported into Cuba from the United States. To this it was replied that inasmuch as the home production of sugar amounted to only 20 per cent. of the consumption the lowering of the duties on Cuban sugar would scarcely affect the home industry, since large quantities would still have to be imported from Europe. After a stubborn contest upon the part of the "insurgents," as the Republican opponents of the measure were styled, the Republican caucus adopted a resolution favoring the proposed reduction. Thereupon the ways and means committee reported a bill providing that whenever Cuba should enact immigration and labor laws as restrictive as those of the United States the President should be authorized to negotiate with Cuba a treaty of reciprocity on the basis of a mutual reduction of 20 per cent. in the tariff duties of the two countries, the said treaty to be in force only till December 1, 1903, a date near the time fixed by the Brussels Sugar Conference for the proposed abolition of bounties by the European beet-sugar producing countries. The beet-sugar Republicans now secured the aid of the Democrats in passing an amendment which provided that the duty on refined sugar should be no higher than that on raw sugar during the existence of the treaty. With this amendment the bill passed the House on April 18 by a vote of 247 to 52, the minority consisting chiefly of "insurgents." The bill then went to the Senate, where it was referred to the committee on relations with Cuba.

On June 13, after it had become known that funds had been expended by the military government of the United States in Cuba to influence sentiment in favor of Cuban reciprocity, the President sent a special message to Congress urging that such reciprocity be granted. Cuba, the President said, stood in a different position to the United States from any other country; she had granted this country special political concessions and in return this country should grant her the commercial concession necessary to her welfare. This concession, the President said, would injure no American industry. Reciprocity was a part of the Republican policy of protection, and so far as concerned the objection that benefit would inure to the sugar trust, provision could easily be made for assuring that the profit should go to the Cuban planter. For reasons of honor and of expediency the President urged that an adequate measure be passed. So far as appeared, the President's message was practically without effect upon Congress.

At a final caucus of Republican senators, held on June 18, nineteen members announced their unalterable opposition to the measure, and the session closed without further action by the Senate. It was then announced that a reciprocity treaty would be negotiated with Cuba and submitted to the Senate at the next session. The President then appointed Gen. Tasker H. Bliss a special commissioner to negotiate with the Cuban representative, Carlos de Zaldo. On December 26 the treaty which they had agreed upon was made public and shortly thereafter was laid before the Senate. The treaty was to be ratified on or before January 31, 1903, was to go into effect ten days thereafter, and was to continue in force for five years and from year to year thereafter subject to notice of termination by either party. A 20 per cent. tariff reduction was granted by the treaty on all Cuban imports into the United States, and, excepting as to tobacco, a reduction varying from 20 to 40 per cent. upon United States exports to Cuba. The main classes of American goods receiving more than a 20 per cent. reduction were: Machinery and apparatus of copper, iron and steel manufactures, glass (except window glass), whiskies, brandies, fish, and certain manufactures of cotton and articles of earthenware—25 per cent.; butter, chemical products, beverages, window glass, hemp-flax, and other vegetable fibres, musical instruments, paper (except for newspapers), certain kinds of cutlery, leather goods and cotton manufactures, plated ware, drawings, photographs, engravings, musical instruments, and vegetables—thirty per cent.; all other manufactures of cotton, wool, and silk, cheese, preserved fruits, paper pulp, perfumery and essences, certain articles of earthenware, soaps other than common, umbrellas, parasols, watches, glucose, and rice—forty per cent. At the close of the year no action looking toward ratification had been taken by the Senate.

The Oleomargarine Act.—The oleomargarine law passed by Congress May 9, and taking effect July 1, provides for a tax of 10 cents per pound, to be paid by the manufacturer upon all oleomargarine. It also provided that "when oleomargarine is free from artificial coloration that causes it to look like butter of any shade of yellow, said tax shall be one-fourth of one cent per pound." Manufacturers of process or renovated butter are required to pay a tax of $50 a year, and manufacturers of adulterated butter $600 a year. Wholesale dealers in adulterated butter shall pay a tax of $480 per annum, and retail dealers in adulterated butter

shall pay a tax of $48 per annum. Every person carrying on the manufacture of process or renovated butter or adulterated butter without paying the special tax shall be required to pay the tax and a fine of not less than $1000 nor more than $5000. Dealers in adulterated butter who do not comply with the law shall be fined not less than $50, nor more than $500 for each offense. Dealers in adulterated butter must sell only original or from original stamped packages. Any one not complying with the requirement of the law in this regard is liable to a fine of $1000, and imprisonment for two years. Strict provisions are made for the inspection of the manufacture and sale of all artificial or renovated butter.

The bill received the support of the representatives and senators from the agricultural states, but was generally condemned by the trade papers and by the industrial and commercial interests. The *Journal of Commerce* said: "Oleomargarine has now been a prominent article of commerce for many years. Every effort has been made by interested parties to prove it injurious to health or to discredit the process of its manufacture, and without success. Chemically, it is butter and derived from the same natural sources as butter obtained by churning cream." The act was particularly condemned because it puts a prohibitory tax upon oleomargarine that is colored, while it is notorious that dairy butter is colored, yet no discrimination is made against it. The coloring matter used in the manufacture of oleomargarine is said to be harmless, which is not always true of the coloring compounds used in the manufacture of dairy butter. The constitutionality of a law which makes an act a misdemeanor in one case and not in another is more than doubtful. It is clearly taxing one legitimate industry for the benefit of another. The contention of the agricultural interests that oleomargarine is unhealthful has been shown to be false. The only other argument for such a measure is the benefits which would redound to the farmers. This is clearly class legislation and the benefits conferred upon farmers are more than counterbalanced by the hardships placed upon a legitimate industry and the increase in price of a necessary article of diet.

Ship Subsidy Bill.—On March 17, the so-called Frye Subsidy Bill, introduced by Senator William P. Frye, of Maine, to take the place of his unsuccessful bill of 1899, passed the Senate by a vote of 42 to 31. The bill had been brought forward on December 9, 1901; had been reported back with amendments by the committee on commerce on January 20, 1902, and after full discussion finally passed against a solid Democratic vote and against the votes of the Republican senators from Vermont, Iowa, and Wisconsin. From the Senate the bill was sent to the House and referred to the committee on merchant marine and fisheries, and there it rested when Congress adjourned on July 1. For this inaction there were several reasons. The adverse vote of six Republican senators had measurably deprived the bill of party standing; the constituents of many of the Western representatives were opposed to it; and the announcement of the international shipping combine (see SHIPPING MERGER) had intensified the prevailing impression that the bill provided unwarrantable favoritism rather than legitimate protection. Therefore, as the Congressional elections were impending, the bill was for the time being shelved.

The bill as agreed to by the Senate provided for three forms of subsidy: one to ocean mail steamships, another to merchant vessels, and a third to deep-sea fishing boats. The provision granting subsidy to mail steamships was in the form of an amendment to an act of 1891, under which the postmaster-general was authorized to enter into contracts with American registered vessels for carrying the United States mails. That act had been intended to induce the establishment of steamship lines to Europe, Asia, South America and Australia by the payment to them of perhaps three times the market mail-carrying rates. But the act had largely failed of its purpose, and to correct its deficiencies the present amendment was proposed. The amendment provided as did the law of 1891 for the conversion of the vessels to be subsidized into auxiliary cruisers in case of war, for their construction and ownership in America, and for crews at least partly American. When these conditions were met the postmaster-general was authorized to make contracts with the lines for not less than 5 nor more than 15 years.

Cabinet.—The appointment as postmaster-general of Henry C. Payne, member of the Republican National Committee from Wisconsin, in place of Charles Emory Smith, resigned, was confirmed by the Senate early in the year. On January 6, 1902, the President accepted also the resignation of Lyman J. Gage, of Illinois, appointed secretary of the treasury in 1897, and appointed in his place Leslie M. Shaw, governor of Iowa from 1897 to 1901. On March 6, the resignation of John D. Long, of Massachusetts, appointed secretary of the navy in 1897, was accepted, and the President appointed, as his successor, William H. Moody, congressional representative from Massachusetts since 1895. The members of the cabinet at the close of the year were as follows: Secretary of State, John Hay, of Ohio, appointed in

1898; secretary of the treasury, Leslie M. Shaw, of Iowa, appointed 1892; secretary of war, Elihu Root, of New York, appointed 1899; attorney-general, Philander C. Knox, of Pennsylvania, appointed 1901; postmaster-general, Henry C. Payne, of Wisconsin, appointed 1902; secretary of the navy, William H. Moody, of Massachusetts, appointed 1902; secretary of the interior, Ethan Allen Hitchcock, of Missouri, appointed 1898; secretary of agriculture, James Wilson, of Iowa, appointed 1897.

Congressional Representatives.—The two following tables show the composition of the Senate of the Fifty-seventh Congress in 1902, and the House of Representatives of both the Fifty-seventh and Fifty-eighth Congresses, giving the name, party, and home address of each member. Names marked * are those of representatives not returned to the Fifty-eighth Congress. Under the law of January 8, 1901, reapportioning the representatives among the States, the total number was increased from 357 to 386. No State lost a representative, and 20 States gained as follows: Illinois, Texas, and New York, 3 each; Pennsylvania, New Jersey, and Minnesota, 2 each; and Florida, Louisiana, Massachusetts, Connecticut, Colorado, Mississippi, North Carolina, North Dakota, Washington, Missouri, West Virginia, Wisconsin, California, and Arkansas, 1 each.

UNITED STATES SENATORS, FIFTY-SEVENTH CONGRESS.

Alabama.—Edmund W. Pettus D. (Selma); John T. Morgan, D. (Selma).

Arkansas.—James K. Jones, D. (Washington); James H. Berry, D. (Bentonville).

California.—George C. Perkins, R. (Oakland); Thomas R. Bard, R. (Hueneme).

Colorado.—Henry M. Teller, D. (Central City); Thomas M. Patterson, D. (Denver).

Connecticut.—Orville H. Platt, R. (Meriden); Joseph R. Hawley, R. (Hartford).

Delaware.—Vacancies.

Florida.—Stephen R. Mallory, D. (Pensacola); James P. Taliaferro, D. (Jacksonville).

Georgia.—Alexander S. Clay, D. (Marietta); Augustus O. Bacon, D. (Macon).

Idaho.—Henry Heitfeld, D. (Lewiston); Fred. T. Dubois, D. (Blackfoot).

Illinois.—William E. Mason, R. (Chicago); Shelby M. Cullom, R. (Springfield).

Indiana.—Charles W. Fairbanks, R. (Indianapolis); Albert J. Beveridge, R. (Indianapolis).

Iowa.—William B. Allison, R. (Dubuque); Jonathan P. Dolliver, R. (Fort Dodge).

Kansas.—William A. Harris, D. (Linwood); Joseph R. Burton, R. (Abilene).

Kentucky.—William J. Deboe, R. (Marion); J. C. S. Blackburn, D. (Versailles).

Louisiana.—Samuel D. McEnery, D. (New Orleans); Murphy J. Foster, D. (Franklin).

Maine.—Eugene Hale, R. (Ellsworth); William P. Frye, R. (Lewiston).

Maryland.—George L. Wellington, I. R. (Cumberland); Louis E. McComas, R. (Williamsport).

Massachusetts.—Henry Cabot Lodge, R. (Nahant); George F. Hoar, R. (Worcester).

Michigan.—Julius C. Burrows, R. (Kalamazoo); James McMillan, R. (died August 10, 1902); Russell A. Alger, R., from December 1, 1902 (Detroit).

Minnesota.—Moses E. Clapp, R. (St. Paul); Knute Nelson, R. (Alexandria).

Mississippi.—Hernando D. Money, D. (Carrollton); Anselm J. McLaurin, D. (Brandon).

Missouri.—George G. Vest, D. (Kansas City); Francis M. Cockrell, D. (Warrensburg).

Montana.—Paris Gibson, D. (Great Falls); William A. Clark, D. (Butte).

Nebraska.—Charles H. Dietrich, R. (Hastings); Joseph H. Millard, R. (Omaha).

Nevada.—John P. Jones, R. (Gold Hill); William M. Stewart, R. (Carson City).

New Hampshire.—Jacob H. Gallinger, R. (Concord); Henry E. Burnham, R. (Manchester).

New Jersey.—John Kean, R. (Elizabeth); John F. Dryden, R. (Newark).

New York.—Thomas C. Platt, R. (Owego); Chauncey M. Depew, R. (Peekskill).

North Carolina.—Jeter C. Pritchard, R. (Marshall); Furnifold M. Simmons, D. (Raleigh).

North Dakota.—H. C. Hansbrough, R. (Devil's Lake); Porter J. McCumber, R. (Wahpeton).

Ohio.—Joseph B. Foraker, R. (Cincinnati); Marcus A. Hanna, R. (Cleveland).

Oregon.—Joseph Simon, R. (Portland); John H. Mitchell, R. (Portland).

Pennsylvania.—Boies Penrose, R. (Philadelphia); Matthew S. Quay, R. (Beaver).

Rhode Island.—Nelson W. Aldrich, R. (Providence); George P. Wetmore, R. (Newport).

South Carolina.—John L. McLaurin, D. (Bennettsville); Benjamin R. Tillman, D. (Trenton).

South Dakota.—Alfred B. Kittridge, R. (Sioux Falls); Robert J. Gamble, R. (Yankton).

Tennessee.—William B. Bate, D. (Nashville); Edward W. Carmack, D. (Memphis).

Texas.—Charles A. Culberson, D. (Dallas); Joseph W. Bailey, D. (Gainesville).

Utah.—Joseph L. Rawlins, D. (Salt Lake City); Thomas Kearns, R. (Salt Lake City).

Vermont.—William P. Dillingham, R. (Montpelier); Redfield Proctor, R. (Proctor).

Virginia.—John W. Daniel, D. (Lynchburg); Thomas S. Martin, D. (Scottsville).

Washington.—George Turner, D. (Spokane); Addison G. Foster, R. (Tacoma).

West Virginia.—Nathan B. Scott, R. (Wheeling); Stephen B. Elkins, R. (Elkins).

Wisconsin.—John C. Spooner, R. (Madison); Joseph V. Quarles, R. (Milwaukee).

Wyoming.—Clarence D. Clark, R. (Evanston); Francis E. Warren, R. (Cheyenne).

CONGRESSIONAL REPRESENTATIVES.

Alabama (57) 9 D.; (58) 9 D.
57: George W. Taylor, D. (Demopolis).
A. A. Wiley, D. (Montgomery).
Henry D. Clayton, D. (Eufaula).
Sydney J. Bowie, D. (Anniston).
Charles W. Thompson, D. (Tuskegee).
John H. Bankhead, D. (Fayette).
John L. Burnett, D. (Gadsden).
William Richardson, D. (Huntsville).
Oscar W. Underwood, D. (Birmingham).
58: Same as 57.

Arkansas (57) 6 D.; (58) 7 D.
57: *P. D. McCulloch, D. (Marianna).
John S. Little, D. (Greenwood).
*Thomas C. McRae, D. (Prescott).
Charles C. Reid, D. (Morrillton).
Hugh A. Dinsmore, D. (Fayetteville).
Stephen Brundidge, Jr., D. (Searcy).
58: R. Bruce Macon, D. (Helena).
Joseph T. Robinson, D. (Lonoke).
R. M. Wallace, D. (Magnolia).

California (57) 7 R.; (58) 5 R.; 3 D.
57: *Frank L. Coombs, R. (Napa).
*Samuel D. Woods, R. (Stockton).
Victor H. Metcalf, R. (Oakland).
*Julius Kahn, R. (San Francisco).
*Eugene F. Loud, R. (San Francisco).
James McLachlan, R. (Pasadena).
James C. Needham, R. (Modesto).
58: J. N. Gillette, R. (Eureka).
Theodore A. Bell, D. (Napa).
E. J. Livernash, D. (San Francisco).
William J. Wynn, D. (San Francisco).
M. J. Daniels, R. (Riverside).

Colorado (57) 2 D.; (58) 2 R.; 1 D.
57: John F. Shafroth, D. (Denver).
*John C. Bell, D. (Montrose).
58: Franklin E. Brooks, R. (Colorado Springs).
H. M. Hogg, R. (Telluride).

Connecticut (57) 4 R.; (58) 5 R.
57: Edward S. Henry, R. (Rockville).
Nehemiah Day Sperry, R. (New Haven).
* } C. A. Russell, R.—died.
} F. B. Brandegee, R.–sec. sess. (New London)
Ebenezer J. Hill, R. (Norwalk).
58: George L. Lilley, R. (Waterbury).

Delaware (57) 1 R.; (58) 1 D.
57: *Lewis H. Ball, R. (Faulkland).
58: Henry M. Houston, D. (Millsboro).

Florida (57) 2 D.; (58) 3 D.
57: S. M. Sparkman, D. (Tampa).
Robert W. Davis, D. (Palatka).
58: William B. Lamar, D. (Monticello).

Georgia (57) 11 D.; (58) 11 D.
57: Rufus E. Lester, D. (Savannah).
James M. Griggs, D. (Dawson).
Elijah B. Lewis, D. (Montezuma).
William C. Adamson, D. (Carrollton).
L. F. Livingston, D. (Kings).
Charles L. Bartlett, D. (Macon).
John W. Maddox, D. (Rome).
William M. Howard, D. (Lexington).
Farish C. Tate, D. (Jasper).
*William H. Fleming, D. (Augusta).
William G. Brantley, D. (Brunswick).
58: T. W. Hardwick, D. (Sandersville).

Idaho (57) 1 P.; (58) 1 R.
57: *Thomas L. Glenn, P. (Montpelier).
58: Burton L. French, R. (Moscow).

Illinois (57) 11 D.; 11 R.; (58) 8 D.; 17 R.
57: James R. Mann, R. (Chicago).
*John J. Feely, D. (Chicago).
George P. Foster, D. (Chicago).
James McAndrews, D. (Chicago).
William F. Mahoney, D. (Chicago).
Henry S. Boutell, R. (Chicago).
George E. Foss, R. (Chicago).
*Albert J. Hopkins, R. (Aurora).
Robert R. Hitt, R. (Mount Morris).
George W. Prince, R. (Galesburg).
*Walter Reeves, R. (Streator).
Joseph G. Cannon, R. (Danville).
Vespasian Warner, R. (Clinton).
Joseph Verdi Graff, R. (Peoria).
*J. Ross Mickey, D. (Macomb).
*Thomas Jefferson Selby, D. (Hardin).
Ben Franklin Caldwell, D. (Chatham).
*Thomas Marion Jett, D. (Hillsboro).
Joseph B. Crowley, D. (Robinson).
James R. Williams, D. (Carmi).
*Frederick J. Kern, D. (Belleville).
George W. Smith, R. (Murphysboro).
58: Martin Emerich, D. (Chicago).
William W. Wilson, R. (Chicago).
Philip Knopf, R. (Chicago).
H. M. Snapp, R. (Joliet).
Charles E. Fuller, R. (Belvidere).
J. A. Sterling, R. (Bloomington).
H. T. Rainey, D. (Carrollton).
William Lorimer, R. (Chicago).
Benjamin F. Marsh, R. (Warsaw).
Wm. A. Rodenburg, R. (East St. Louis).

Indiana (57) 4 D.; 9 R.; (58) 4 D.; 9 R.
57: James A. Hemenway, R. (Boonville).
Robert Walter Miers, D. (Bloomington).
William T. Zenor, D. (Corydon).
Francis M. Griffith, D. (Vevay).
Elias S. Holliday, R. (Brasil).
James E. Watson, R. (Rushville).
Jesse Overstreet, R. (Indianapolis).
George W. Cromer, R. (Muncie).
Charles Beary Landis, R. (Delphi).
Edgar Dean Crumpacker, R. (Valparaiso).
*George W. Steele, R. (Marion).
James M. Robinson, D. (Fort Wayne).
Abraham Lincoln Brick, R. (South Bend).
58: Frederick K. Landis, R. (Logansport).

CONGRESSIONAL REPRESENTATIVES—Continued.

Iowa (57) 11 R.; (58) 10 R.; 1 D.
57: Thomas Hedge, R. (Burlington).
*John N. W. Rumple, R. (Marengo).
*David B. Henderson, R. (Dubuque).
Gilbert N. Haugen, R. (Northwood).
Robert G. Cousins, R. (Tipton).
John Fletcher Lacey, R. (Oskaloosa).
John A. T. Hull, R. (Des Moines).
William Peters Hepburn, R. (Clarinda).
Walter I. Smith, R. (Council Bluffs).
James Perry Conner, R. (Denison).
Lot Thomas, R. (Storm Lake).
58: Martin J. Wade, D. (Iowa City).
B. P. Birdsall, R. (Clarion).

Kansas (57) 1 D.; 7 R.; (58) 8 R.
57: Charles Frederick Scott, R. (Iola).
Charles Curtis, R. (Topeka).
Justin D. Bowersock, R. (Lawrence).
*Alfred M. Jackson, D. (Winfield).
James Monroe Miller, R. (Council Grove).
William A. Calderhead, R. (Marysville).
William A. Reeder, R. (Logan).
Chester A. Long, R. (Medicine Lodge).
58: P. P. Campbell, R. (Pittsburg).

Kentucky (57) 8 D.; 3 R.; (58) 10 D.; 1 R.
57: *Charles K. Wheeler, D. (Paducah).
*Henry D. Allen, D. (Morganfield).
*McKenzie Moss, R. (Bowling Green).
David H. Smith, D. (Hodgensville).
*Harvey S. Irwin, R. (Louisville).
Daniel Linn Gooch, D. (Covington).
South Trimble, D. (Frankfort).
George G. Gilbert, D. (Shelbyville).
James N. Kehoe, D. (Maysville).
*James B. White, D. (Irvine).
Vincent Boreing, R. (London).
58: Ollie James, D. (Marion).
O. A. Stanley, D. (Henderson).
John S. Rhea, D. (Russellville).
Swanger Sherley, D. (Louisville).
F. A. Hopkins, D. (Prestonburg).

Louisiana (57) 6 D.; (58) 7 D.
57: Adolph Meyer, D. (New Orleans).
Robert Charles Davey, D. (New Orleans).
Robert F. Broussard, D. (New Iberia).
Phanor Breazeale, D. (Natchitoches).
Joseph E. Ransdell, D. (Lake Providence).
Samuel M. Robertson, D. (Baton Rouge).
58: A. P. Pujo, D. (Lake Charles).

Maine (57) 4 R.; (58) 4 R.
57: Amos Lawrence Allen, R. (Alfred).
Charles E. Littlefield, R. (Rockland).
Edwin C. Burleigh, R. (Augusta).
Lewellyn Powers, R. (Houlton).
58: Same as 57.

Maryland (57) 6 R.; (58) 4 R.; 2 D.
57: William H. Jackson, R. (Salisbury).
*Albert A. Blakeney, R. (Franklinville).
Frank C. Wachter, R. (Baltimore).
*Charles R. Schirm, R. (Baltimore).
Sydney E. Mudd, R. (Laplata).
George A. Pearre, R. (Cumberland).
58: J. F. C. Talbott, D. (Lutherville).
J. W. Denny, D. (Baltimore).

Massachusetts (57) 3 D.; 10 R.; (58) 4 D.; 10 R.
57: George P. Lawrence, R. (North Adams).
Frederick H. Gillett, R. (Springfield).
John R. Thayer, D. (Worcester).
Charles Quincy Tirrell, R. (Natick).
*William S. Knox, R. (Lawrence).
{ *William H. Moody, R.—resigned
{ Augustus P. Gardner, R. (Hamilton).
Ernest W. Roberts, R. (Chelsea).
Samuel W. McCall, R. (Winchester).
*Joseph A. Conry, D. (Boston).
*Henry F. Naphen, D. (Boston).
Samuel L. Powers, R. (Newton).
William C. Lovering, R. (Taunton).
William S. Greene, R. (Fall River).
58: Butler Ames, R. (Lowell).
J. A. Keliher, D. (Boston).
W. S. McNary, D. (Boston).
John A. Sullivan, D. (Boston).

Michigan (57) 12 R.; (58) 11 R.; 1 D.
57: *John B. Corliss, R. (Detroit).
*Henry C. Smith, R. (Adrian).
Washington Gardner, R. (Albion).
Edward L. Hamilton, R. (Niles).
William A. Smith, R. (Grand Rapids).
Samuel W. Smith, R. (Pontiac).
*Edgar Weeks, R. (Mount Clemens).
Joseph W. Fordney, R. (Saginaw).
Roswell P. Bishop, R. (Ludington).
*Henry H. Alpin, R. (West Bay City).
Archibald B. Darragh, R. (St. Louis).
*Carlos D. Sheldon, R. (Houghton).
58: Alfred Lucking, D. (Detroit).
Charles E. Townsend, R. (Jackson).
Henry McMoran, R. (Port Huron).
George A. Loud, R. (Oscoda).
H. O. Young, R. (Ishpeming).

Minnesota (57) 7 R.; (58) 8 R.; 1 D.
57: James A. Tawney, R. (Winona).
James T. McCleary, R. (Mankato).
*Joel P. Heatwole, R. (Northfield).
Frederick C. Stevens, R. (St. Paul).
*Loren Fletcher, R. (Minneapolis).
*Page Morris, R. (Duluth).
*Frank M. Eddy, R. (Glenwood).
58: C. R. Davis, R. (St. Peter).
John Lind, D. (Minneapolis).
C. B. Buckman, R. (Little Falls).
O. J. Volstead, R. (Granite Falls).
J. Adam Bede, R. (Pine City).
Halvor Steenerson, R. (Crookston).

Mississippi (57) 7 D.; (58) 8 D.
57: Ezekiel S. Candler, Jr., D. (Corinth).
Thomas Spight, D. (Ripley).
*Patrick Henry, D. (Vicksburg).
*Andrew F. Fox, D. (West Point).
John S. Williams, D. (Yazoo).
Frank A. McLain, D. (Gloster).
*Charles E. Hooker, D. (Jackson).
58: B. G. Humphreys, D. (Greenville).
W. S. Hill, D. (Winona).
A. M. Byrd, D. (Philadelphia).
E. J. Bowers, D. (Bay St. Louis).

Missouri (57) 13 D.; 2 R; (58) 15 D.; 1 R.
57: James T. Lloyd, D. (Shelbyville).
William W. Rucker, D. (Keytesville).
John Dougherty, D. (Liberty).
Charles F. Cochran, D. (St. Joseph).
William S. Cowherd, D. (Kansas City).
David A. De Armond, D. (Butler).
*James Cooney, D. (Marshall).
Dorsey W. Shackleford, D. (Jefferson City).
Champ Clark, D. (Bowling Green).
Richard Bartholdt, R. (St. Louis).
*Charles Frederick Joy, R. (St. Louis).
James Joseph Butler, D. (St. Louis).
Edward Robb, D. (Perryville).
William D. Vandiver, D. (Cape Girardeau).
Maecenas E. Benton, D. (Neosho).
58: C. W. Hamlin, D. (Springfield).
John T. Hunt, D. (St. Louis).
Robert Lamar, D. (Houston).

Montana (57) 1 P.; (58) 1 R.
57: *Caldwell Edwards, P. (Bozeman).
58: Joseph M. Dixon, R. (Missoula).

Nebraska (57) 2 D.; 2 P.; 2 R.; (58) 1 D.; 5 R.
57: Elmer J. Burkett, R. (Lincoln).
*David H. Mercer, R. (Omaha).
*John S. Robinson, D. (Madison).
*William L. Stark, P. (Aurora).
*Ashton C. Shallenberger, D. (Alma).
*William Neville, P. (North Platte).
58: G. M. Hitchcock, D. (Omaha).
J. J. McCarthy, R. (Ponca).
E. H. Hinshaw, R. (Fairbury).
George W. Norris, R. (McCook).
M. P. Kinkaid, R. (O'Neill).

Nevada (57) 1 D.; (58) 1 D.
57: *Francis G. Newlands, D. (Reno).
58: C. D. Van Duser, D. (Tonopah).

CONGRESSIONAL REPRESENTATIVES—Continued.

New Hampshire (57) 2 R.; (58) 2 R.
57: Cyrus A. Sulloway, R. (Manchester).
Frank D. Currier, R. (Canaan).
58: Same as 57.

New Jersey (57) 2 D.; 6 R.; (58) 3 D.; 7 R.
57: H. C. Loudenslager, R. (Paulsboro).
John J. Gardner, R. (Atlantic City).
B. F. Howell, R. (New Brunswick).
*Joshua S. Salmon, D.—died.
*DeWitt C. Flanagan, D. (Morristown).
*James F. Stewart, R. (Paterson).
Richard W. Parker, R. (Newark).
Allen L. McDermott, D. (Jersey City).
Charles N. Fowler, R. (Elizabeth).
58: William M. Lanning, R. (Trenton).
William Hughes, D. (Paterson).
William H. Wiley, R. (East Orange).
Allan Benny, D. (Jersey City).

New York (57) 12 D.; 22 R.; (58) 17 D.; 20 R.
57: *Frederic Storm, R. (Bayside).
J. J. Fitzgerald, D. (Brooklyn).
*Henry Bristow, R. (Brooklyn).
*Harry A. Hanbury, R. (Brooklyn).
Frank E. Wilson, D. (Brooklyn).
George H. Lindsay, D. (Brooklyn).
*Montague Lessler, R. (New York).
*Thomas J. Creamer, D. (New York).
H. M. Goldfogle, D. (New York).
*A. J. Cummings, D.—died.
*Edward Swann, D. (New York).
William Sulzer, D. (New York).
George B. McClellan, D. (New York).
*O. H. P. Belmont, D. (New York).
W. H. Douglas, R. (New York).
Jacob Ruppert, Jr., D. (New York).
*C. A. Pugsley, D. (Peekskill).
*Arthur S. Tompkins, R. (Nyack).
John H. Ketcham, R. (Dover Plains).
William H. Draper, R. (Troy).
George N. Southwick, R. (Albany).
*George Knox Stewart, R. (Amsterdam).
Lucius N. Littauer, R. (Gloversville).
*Louis W. Emerson, R. (Warrensburg).
Charles L. Knapp, R. (Lowville).
James S. Sherman, R. (Utica).
*George W. Ray, R.—resigned.
John Wilbur Dwight, R. (Dryden).
Michael E. Driscoll, R. (Syracuse).
Sereno E. Payne, R. (Auburn).
Charles W. Gillet, R. (Addison).
James W. Wadsworth, R. (Geneseo).
J. B. Perkins, R. (Rochester).
William H. Ryan, D. (Buffalo).
De Alva S. Alexander, R. (Buffalo).
Edward B. Vreeland, R. (Salamanca).
58: Townsend Scudder, D. (Brooklyn).
Charles T. Dunwell, R. (Brooklyn).
E. M. Bassett, D. (Brooklyn).
Robert H. Baker, D. (Brooklyn).
Timothy D. Sullivan, D. (New York).
William R. Hearst, D. (New York).
F. B. Harrison, D. (New York).
Ira E. Rider, D. (New York).
F. E. Schober, D. (New York).
Joseph A. Goulden, D. (New York).
Norton P. Otis, R. (Yonkers).
Thomas W. Bradley, R. (Walden).
W. H. Flack, R. (Malone).
George J. Smith, R. (Kingston).

North Carolina: (57) 7 D.; 2 R.; (58) 10 D.
57: John H. Small, D. (Washington).
Claude Kitchen, D. (Scotland Neck).
Charles R. Thomas, D. (Newbern).
Edward W. Pou, D. (Smithfield).
William W. Kitchen, D. (Roxboro).
*John D. Bellamy, D. (Wilmington).
Theodore F. Kluttz, D. (Salisbury).
*Edmond S. Blackburn, R. (Wilkesboro).
*James M. Moody, R. (Waynesville).
58: G. B. Patterson, D. (Maxton).
Robert N. Page, D. (Aberdeen).
E. Y. Webb, D. (Shelby).
J. M. Gudger, Jr., D. (Asheville).

North Dakota (57) 1 R.; (58) 2 R.
57: Thomas F. Marshall, R. (Oakes).
58: B. F. Spalding, R. (Fargo).

Ohio (57) 4 D.; 17 R.; (58) 4 D.; 17 R.
57: *William B. Shattuc, R. (Madisonville).
*Jacob H. Bromwell, R. (Wyoming).
Robert M. Nevin, R. (Dayton).
*Robert B. Gordon, D. (St. Marys).
John S. Snook, D. (Paulding).
Charles Q. Hildebrant, R. (Wilmington).
Thomas Barton Kyle, R. (Troy).
William R. Warnock, R. (Urbana).
James H. Southard, R. (Toledo).
Stephen Morgan, R. (Oak Hill).
Charles H. Grosvenor, R. (Athens).
*Emmett Tompkins, R. (Columbus).
*James A. Norton, D. (Tiffin).
William W. Skiles, R. (Shelby).
H. C. Van Voorhis, R. (Zanesville).
Joseph J. Gill, R. (Steubenville).
John W. Cassingham, D. (Coshocton).
*Robert W. Tayler, R. (Lisbon).
Charles Dick, R. (Akron).
Jacob A. Beidler, R. (Willoughby).
Theodore E. Burton, R. (Cleveland).
58: N. Longworth, R. (Cincinnati).
H. C. Goebel, D. (Greenville).
DeWitt C. Badger, D. (Columbus).
James Kennedy, R. (Youngstown).

Oregon (57) 2 R.; (58) 2 R.
57: Thomas H. Tongue, R. (Hillsboro).
*Malcolm A. Moody, R. (The Dalles).
58: J. M. Williamson, R. (Pineville).

Pennsylvania (57) 4 D.; 26 R.; (58) 4 D.; 28 R.
57: *Galusha A. Grow, R. (Glenwood).
Robert H. Foerderer, R. (Philadelphia).
Henry H. Bingham, R. (Philadelphia).
Robert Adams, Jr., R. (Philadelphia).
Henry Burk, R. (Philadelphia).
*James R. Young, R. (Philadelphia).
Edward DeV. Morrell, R. (Torresdale).
Thomas S. Butler, R. (Westchester).
Irving P. Wanger, R. (Norristown).
*Howard Mutchler, D. (Easton).
*Henry D. Green, D. (Reading).
Henry Burd Cassel, R. (Marietta).
*William Connell, R. (Scranton).
Henry W. Palmer, R. (Wilkesbarre).
George R. Patterson, R. (Ashland).
Marlin E. Olmsted, R. (Harrisburg).
Charles F. Wright, R. (Susquehanna).
Elias Deemer, R. (Williamsport).
*Rufus K. Polk, D.—died.
*A. Billmeyer, D. (Washingtonville).
Thaddeus M. Mahon, R. (Chambersburg).
*Robert Jacob Lewis, R. (York).
Alvin Evans, R. (Ebensburg).
*Summers M. Jack, R. (Indiana).
John Dalzell, R. (Pittsburg).
*William H. Graham, R. (Allegheny).
Ernest F. Acheson, R. (Washington).
*Joseph B. Showalter, R. (Butler).
Arthur L. Bates, R. (Meadville).
Joseph C. Sibley, R. (Franklin).
*J. K. P. Hall, D. (Ridgway).
58: George D. McCreary, R. (Philadelphia).
George Howell, D. (Scranton).
Marcus C. L. Kline, D. (Allentown).
Charles H. Dickerman, D. (Milton).
Daniel F. Lafean, R. (York).
S. R. Dresser, R. (Bradford).
George F. Huff, R. (Greensburg).
Allen F. Cooper, R. (Uniontown).
J. H. Shull, D. (Stroudsburg).
W. O. Smith, R. (Punxsutawney).
G. Shiras, III., R. (Allegheny).
H. Kirke Porter, R. (Pittsburg).
James W. Brown, R. (Pittsburg).

Rhode Island (57) 2 R.; (58) 1 R.; 1 D.
57: *Melville Bull, R. (Middletown).
Adin B. Capron, R. (Stillwater).
58: D. L. D. Granger, D. (Providence).

South Carolina (57) 7 D.; (58) 7 D.
57: *William Elliott, D. (Beaufort).
*Wm. Jasper Talbert, D. (Parksville).
*Asbury C. Latimer, D. (Belton).
Joseph T. Johnson, D. (Spartanburg).

David E. Finley, D. (Yorkville).
R. B. Scarborough, D. (Conway).
Asbury F. Lever, D. (Lexington).
58: George S. Legare, D. (Charleston).
George W. Croft, D. (Aiken).
Wyatt Aiken, D. (Abbeville).

South Dakota (57) 2 R.; (58) 2 R.
57: Charles H. Burke, R. (Pierre).
Eben W. Martin, R. (Deadwood).
58: Same as 57.

Tennessee (57) 8 D.; 2 R.; (58) 8 D.; 2 R.
57: Walter P. Brownlow, R. (Jonesboro).
Henry R. Gibson, R. (Knoxville).
John Austin Moon, D. (Chattanooga).
*Charles E. Snodgrass, D. (Crossville).
James D. Richardson, D. (Murfreesboro).
John W. Gaines, D. (Nashville).
Lemuel P. Padgett, D. (Columbia).
Thetus W. Sims, D. (Linden).
Rice A. Pierce, D. (Union City).
Malcolm R. Patterson, D. (Memphis).
58: M. T. Fitzpatrick, D. (Hartsville).

Texas (57) 13 D.; (58) 16 D.
57: Thomas H. Ball, D. (Huntsville).
Sam Bronson Cooper, D. (Beaumont).
*R. C. De Graffenreid, D.—died.
Gordon Russell, D. (Tyler).
*John L. Sheppard, D.—died.
Morris Sheppard, D. (Texarkana).
Choice B. Randell, D. (Sherman).
*Dudley G. Wooten, D. (Dallas).
Robert Lee Henry, D. (Waco).
*S. W. T. Lanham, D. (Weatherford).
Albert S. Burleson, D. (Austin).
George F. Burgess, D. (Gonsales).
*Rudolph Kleberg, D. (Cuero).
James L. Slayden, D. (San Antonio).
John Hall Stephens, D. (Vernon).
58: J. A. Beall, D. (Waxahachie).
Scott Field, D. (Calbert).
A. W. Gregg, D. (Palestine).
O. W. Gillespie, D. (Fort Worth).
John N. Garner, D. (Uvalde).
W. R. Smith, D. (Colorado).

Utah (57) 1 R.; (58) 1 R.
57: *George Sutherland, R. (Salt Lake City).
58: Joseph Howell, R. (Wellsville).

Vermont (57) 2 R.; (58) 2 R.
57: David J. Foster, R. (Burlington).
Kittredge Haskins, R. (Brattleboro).
58: Same as 57.

Virginia (57) 10 D.; (58) 9 D.; 1 R.
57: William A. Jones, D. (Warsaw).
Harry Lee Maynard, D. (Portsmouth).
John Lamb, D. (Richmond).
*Francis R. Lassiter, D. (Petersburg).
Claude A. Swanson, D. (Chatham).
*Peter J. Otis, D.—died.
Carter Glass, D. (Lynchburg).
James Hay, D. (Madison).
John F. Rixey, D. (Brandy).
*William F. Rhea, D. (Bristol).
Henry D. Flood, D. (Appomattox).
58: R. G. Southall, D. (Amelia).
Campbell Slemp, R. (Big Stone Gap).

Washington (57) 2 R.; (58) 3 R.
57: Wesley L. Jones, R. (Yakima).
Francis W. Cushman, R. (Tacoma).
58: William E. Humphrey, R. (Seattle).

West Virginia (57) 4 R.; (58) 5 R.
57: Blackburn B. Dovenor, R. (Wheeling).
Alston G. Dayton, R. (Philippi).
Joseph H. Gaines, R. (Charleston).
James A. Hughes, R. (Huntington).
58: Harry C. Woodyard, R. (Spencer).

Wisconsin (57) 10 R.; (58) 10 R.; 1 D.
57: Henry A. Cooper, R. (Racine).
*Herman B. Dahle, R. (Mount Horeb).
Joseph W. Babcock, R. (Necedah).
Theobold Otjen, R. (Milwaukee).
*Samuel S. Barney, R. (West Bend).
James H. Davidson, R. (Oshkosh).
John Jacob Esch, R. (La Crosse).
Edward S. Minor, R. (Sturgeon Bay).
Webster E. Brown, R. (Rhinelander).
John J. Jenkins, R. (Chippewa Falls).
58: H. C. Adams, R. (Madison).
William H. Stafford, R. (Milwaukee).
C. H. Weisse, D. (Sheboygan Falls).

Wyoming (57) 1 R.; (58) 1 R.
57: Frank W. Mondell, R. (Newcastle).
58: Same as 57.

TERRITORIAL DELEGATES.

Arizona (57) 1 D.; (58) 1 D.
57: *Marcus A. Smith, D. (Tucson).
58: J. F. Wilson, D. (Prescott).

New Mexico (57) 1 R.; (58) 1 R.
57: Bernard S. Rodey, R. (Albuquerque).
58: Same as 57.

Oklahoma (57); 1 R.; (58) 1 R.
57: *Dennis T. Flynn, R. (Guthrie).
58: Bird S. Maguire, R. (Guthrie).

Hawaii (57) 1 Ind.; (58) 1 R.
57: *Robert W. Wilcox, Ind. (Honolulu).
58: Jonah Kalauiauoale, R. (Honolulu).

Porto Rico—resident commissioner.
57: Federico Degetau, R. (San Juan).
58: Same as 57.

Federal Judiciary.—The only change in the personnel of the Supreme Court during 1902 was the resignation, on August 11, of Associate-Justice Horace Gray, appointed from Massachusetts in 1881, and the appointment by the President, in his stead, of Hon. Oliver Wendell Holmes, chief justice of the Supreme Judicial Court of Massachusetts. It was announced, however, that Associate-Justice George Shiras, Jr., would retire early in 1903. The justices of the court at the end of the year, with the dates of their appointments, were as follows: Melville Weston Fuller, of Illinois, chief justice, appointed 1888; John Marshall Harlan, Kentucky, 1877; David Josiah Brewer, Kansas, 1889; Henry Billings Brown, Michigan, 1890; George Shiras, Jr., Pennsylvania, 1892; Edward Douglass White, Louisiana, 1894; Rufus W. Peckham, New York, 1895; Joseph McKenna, California, 1897; Oliver Wendell Holmes, Massachusetts, 1902.

Although no decisions that can be said to be of national importance were handed down during 1902, a number of questions, interesting to both laymen and lawyers, were settled. The final attitude of the United States courts in regard to the exemption clauses contained in the notices or contracts printed on passenger tickets was declared in the case of "The Kensington, 22 Sup. Ct. 102." The court held that stipulations for exemption from liability for negligence on the part of a carrier, to a passenger or baggage, were void, although the contract, which was

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made in Belgium, was valid by the laws of that country, and contained a stipulation that any question arising under it should be governed by that law. Since this decision the only protection left to ocean carriers in this regard is in the narrow provisions of the "Harter Act."

A provision in the Kentucky constitution, forbidding a carrier from charging more for a short haul than a long one, was held to be an interference with interstate commerce and void, where the long haul was an interstate haul. It was contended that this was merely a local regulation, but this was disallowed, the court jealously guarding the power given to the national government in the "Interstate Commerce Clause" of the Constitution.

The character of a railroad company as a carrier of mails was determined in the case of Bankers' Mutual Casualty Co. *vs.* Minn. St. P. S.S. M. C. (117 Fed. Rep. 434), which held that a railroad company is not liable to the owner of a mail package for its loss occurring through the carrier's negligence. This classifies a railway company as a public servant, and settles a mooted question.

Great interest has been aroused in the Western States by the case of the State of Kansas *vs.* the State of Colorado. In a preliminary decision upon a demurrer to the plaintiff's bill, which asked to have the State of Colorado restrained from appropriating the waters of the Arkansas River, which flows through both States, for irrigation purposes, the court held that it had jurisdiction in interstate controversies, that the matter in question appeared to come under that head, and overruled the demurrer, ordering further proofs as to the nature and extent of the use of the water before it will pass on the merits of the case. This decision as reported in 185 U. S. 125, settles the question of jurisdiction, and the final determination will involve vast agricultural interests in both States.

The case of the U. S. *ex rel.* Guaranty Trust Co. *vs.* Haggerty (116 Fed. 510) has an important bearing on the labor question. The court held that it had the power to restrain by injunction, a combination of persons, which is formed to induce employees, who are satisfied with their situations, to strike, for the purpose of inflicting injury and damage upon their employers. The defendants, labor agitators, held a mass meeting near certain mines, after the injunction issued, denounced the court, and endeavored further to induce employees of the mining company to strike. The court held them guilty of contempt of court. In the case of *In re* Neavitt (117 Fed. Rep. 448) the court holds that the President has no power to pardon civil contempts of court, as such an act would be interfering with an inherent and necessary attribute of the judiciary, which is intended to serve as a check on the legislative and executive powers. The case contained a dictum to the effect that the President has no power to pardon criminal contempts. Two interesting cases involving the question of whether the status of a foreign country is a political or judicial question, were decided during the year. In Terlinden *vs.* Ames the court sustained an application for the extradition of a Prussian subject, under the provisions of our treaty with that country in 1852, when it was an independent power. The court held that as both the German Empire and the United States recognized the treaty as still binding, the question became a political instead of a judicial one, and that the court was bound by the attitude of the government. Where, however, it became necessary to decide whether Algeria was a part of France, the court, in the absence of a contrary ruling by the state department, held the question to be a judicial one, and received proof of the laws of France. (Tartar Chem. Co. *vs.* U. S. 116 Fed. 726.)

An interesting question in the law of torts was decided by the United States District Court of Hawaii, October, 1902, in the case of Campbell *vs.* H. Hackfeld & Co., Ltd. The defendant company contracted to unload a vessel lying within the navigable waters of the harbor, and employed plaintiff as a laborer. The latter, while working in the ship's hold, was injured by defendant's negligence. The court held, that as the relation of the parties was not of a maritime nature, a court of admiralty had no jurisdiction. This decision will exclude a large number of cases of this class, which would otherwise be brought in the United States courts. The case of Northern Assurance Company *vs.* Grand View Building Association, will rank as a leading case in insurance law. A policy containing a provision against other insurance was issued to an applicant who had prior insurance to the knowledge of the insurer's agent. Parol or oral evidence of the agent's knowledge was held inadmissible, as varying the terms of a written contract. This is directly contrary to the leading case of Van Shaick *vs.* Niagara Insurance Company in New York, and will have the effect of forcing persons, insured under such circumstances, to bring their actions in the home state of the defendant company, to prevent removal to the United States courts, where this decision will govern.

The Illinois "Anti-Trust Law" was held invalid in the case of Connelly against the Union Sewer Pipe Company, on the ground that it was class legislation. The Northern Securities Company case was begun during the year and is still pending.

The final decision of this case by the Supreme Court will be of the very greatest importance in the financial world. See TRUSTS.

For the Illinois anti-trust law case see TRUSTS.

Foreign Relations.—During 1902 the United States continued to occupy an increasingly important place in international affairs, and on several occasions gave its authority and the weight of its influence to a peaceful settlement of international disputes. Three important arbitration decisions in which the United States was interested were decided. For the decision of King Oscar of Sweden in the damage cases growing out of the joint action of Great Britain and the United States in Samoa in 1899, see SAMOAN ISLANDS. For the decision of the Hague tribunal in the dispute with Mexico over the famous "Pious Fund," and the decision of Dr. Asser, as arbitrator in the Russian-American sealing dispute, see ARBITRATION, INTERNATIONAL. For Secretary Hay's Roumanian note, see ROUMANIA. For the Danish West Indian treaty, see DANISH WEST INDIES.

With Cuba, diplomatic relations proper were entered into by the appointment to that country, on May 5, of a minister plenipotentiary from the United States. The government of Cuba was formally turned over to the islanders on May 20. Extradition treaties were concluded and proclaimed with Chile on May 27; with Servia on May 17; with Belgium on June 14; and with Denmark on April 17. A convention with Guatemala for the reciprocal protection of trade-marks and trade-labels was proclaimed on April 11. A supplementary convention was proclaimed on April 2 with Great Britain extending for twelve months, from July 28, 1901, the time within which British colonies or foreign possessions might give their adhesion to the convention for the tenure and disposition of real and personal property, signed on March 2, 1899.

A general treaty of amity, commerce, and navigation was concluded with Spain on July 3. A treaty with Great Britain, ratified by the Senate on June 30, gave to the United States the rights of the most favored nation in Zanzibar. The time within which the reciprocity treaty between the United States and France might be concluded was extended by an agreement reached in September. An extradition treaty between the United States and Chile was concluded on May 27.

In Colombia the long revolt of the Liberals against the Conservative government was practically ended in November by the desistance of the Liberals and a treaty of peace signed on board the United States ship *Wisconsin*. The revolt had necessitated, in September, the sending of warships to protect American interests and the landing of marines in order to secure to the United States the right of transit across the isthmus guaranteed her by the treaty of 1846.

On account of the insurrection in Venezuela, two United States cruisers were sent to La Guayra in August to protect American interests. The misuse of the United States flag by a Venezuelan gunboat within the three-mile limit off Ciudad led to a demand from the United States minister for an apology, which was readily given.

Owing to the continued reluctance of the government of Venezuela, as represented by President Castro, to meet its international financial obligations, two of its principal creditors, Great Britain and Germany, united, December 8, in accordance with a prior agreement, in presenting to Venezuela an ultimatum demanding immediate payment of the debts or satisfactory assurance that they would be paid. Venezuela failing to comply with the demands, the legations of the allies were closed, the British and German interests left in the hands of Mr. Herbert W. Bowen, minister of the United States to Venezuela, and a blockade of Venezuelan ports was instituted. On December 18, Venezuela proposed arbitration, and on December 20 the Powers offered to accept President Roosevelt as arbitrator. The President, however, declined this offer and suggested that the matter be referred to the Hague tribunal.

In the Orient the United States continued to press for a liberal treatment of China by the European powers. Russia had stipulated that its evacuation of Manchuria should be accompanied by industrial concessions from China, and that during the period of evacuation, which was to be prolonged for some three years, Russia was to have control of the Chinese troops in the province. Great Britain, Japan, and the United States objected to these terms, the United States especially protesting, on February 1, that they were in violation of treaty rights and of the principle of the "open door" consented to by Russia. On April 8, therefore, Russia modified its terms, agreeing to evacuate Manchuria within a year and a half, and officially declaring the province to be "an integral portion of the Chinese empire." The United States was also one of the signatory parties to the revision of the Chinese tariff effected during the summer and signed, in addition to the United States, by all the great European powers with the exception of France. Probably, however, the most important service rendered to China by the United States was in aiding to secure a reduction of the indemnity for damages accruing from the

Boxer outbreak. Claims advanced by the several governments on behalf of private persons would have largely increased the amount of this indemnity as originally fixed. The United States accordingly proposed that the official amount of the indemnity be decreased in order that without increasing the sum total, allowance could be made for private claims. This was finally agreed to in June, Great Britain waiving the objections which it had at first made to the plan. The United States also pressed for the payment of the indemnity in such a ratio of gold and silver as would not cause China to lose by the relative depreciation of silver currency.

The General Elections.—On November 4 the elections for representatives to the Fifty-eighth Congress occurred in all the States except Maine, Oregon, and Vermont, where they had already been held in September. In these three States the Republican candidates were all successful. In the November elections the Democrats made considerable gains, the large Republican majorities of two years ago being quite generally reduced. An interesting and significant phase of the election was the return to the Republican column of nearly all of the western States that had given their support to Bryan on the free-silver issue in 1896. The completed returns, however, showed that the Republicans would still have a majority of 22 in the House of Representatives of the next Congress, as against a majority of 43 in the Fifty-seventh Congress. This was the first election under the new decennial apportionment, 386 members as against 357 in the present Congress being chosen. The increased number of representatives were distributed chiefly among the States of the South and West, where the growth of population has been the largest.

UNITED STATES MILITARY ACADEMY. See MILITARY ACADEMY, UNITED STATES.

UNITED STATES STEEL CORPORATION. There was much discussion of this corporation during 1902 as a beneficiary of the protective tariff, a brief account of which may be found in the article TRUSTS (paragraph Political Discussion). The most important events in the history of the corporation during 1902 were its reorganization and its profit-sharing plan.

Reorganization.—On April 25, 1902, the plan of the directors of the United States Steel Corporation was made public, for the conversion into bonds of $200,000,000, or approximately 40 per cent., of its preferred stock and for the issue in addition of bonds to the amount of $50,000,000. The purpose of the plan, as stated by the directors, was to effect economies through additional capital, and to reduce annual charges, by a lower rate of interest. The annual interest saved in paying 5 per cent. upon $250,000,000 of bonds instead of 7 per cent. upon $200,000,000 of stock, would be $1,500,000; but from this sum should be deducted $1,010,000, set aside as a sinking fund to redeem the bonds within sixty years, thus leaving an initial annual saving of $490,000. Of the net additional capital of $50,000,000, it appeared that $10,000,000, or 4 per cent. of the entire $250,000,000 involved, was to be paid to an underwriting syndicate composed principally of J. Pierpont Morgan & Co., and some other directors of the company; the remaining $40,000,000 was to be employed partially in paying an accruing indebtedness of $10,000,000 or more, and partially in betterments and construction calculated to increase the annual revenues by some $10,000,000 or $15,000,000. As it seemed doubtful whether the New Jersey law of 1896 and the amendments thereof, under which the steel trust was incorporated, permitted the financial reorganization desired, a law had been passed to fit the case March 26, 1902, and under that law the stockholders voted on May 19. Two-thirds of both classes of stock, as required by the law, were voted in favor of the plan; the count standing 3,745,731 shares of preferred and 3,958,557 of common stock in the affirmative, and 4865 shares of preferred and 7675 of common, in the negative. By the plan as adopted every preferred stockholder was entitled to exchange 40 per cent. of his holdings for bonds, and, at his option, to subscribe for bonds for cash, to an amount equal to 10 per cent. of his holdings.

Profit-Sharing Plan.—In order to retain permanently in its service its most efficient employees, and to increase their interest not only in the constituent company for which they might work, but in the success of the corporation as a whole, the finance committee of the steel corporation promulgated on December 31, 1902, the following tentative plan of profit-sharing: (1) There would be bought by the corporation each year 25,000 shares of its preferred stock which employees might subscribe for at the market price, to an amount varying from 5 to 20 per cent. of their annual salaries, 5 per cent. for the highest paid officers, and 20 per cent. for the lowest paid employees. Payments might be completed upon the stock so subscribed for at any time within three years, but interest at 5 per cent. would be charged on deferred payments. On the other hand the corporation would pay 7 per cent. upon the stock, and would pay a bonus of 5 per cent. for five years if the stock was continuously held after having been completely paid for, and if the stockholder remained in the employ of the company. Some further bonus would also be made, the

amount to be derived from the bonuses withheld from those who did not fulfill these conditions; (2) the direct profit-sharing plan, which it had been found impracticable to extend to the lower paid employees who had consequently been given opportunity to subscribe for a greater relative amount of stock, was to readjust and reduce the salaries of all officers charged with active responsibility in the affairs of the corporation and in lieu of this reduction to set aside for such officers a certain per cent. of the corporation's earnings over and above its fixed charges. This would vary from 1 per cent. to 2½ per cent., according to the annual net earnings of the corporation. Of the money so set aside, 75 per cent. would be distributed within the year, while the remaining 25 per cent. would be divided at the end of five years to those who had continuously remained in the employ of the company. Necessarily the plan, as thus outlined, is somewhat experimental and the finance committee reserved the right to change or modify it as occasion required.

UNIVERSALISTS, a sect whose distinctive tenet is the universal salvation of man, originated from the teachings of the Rev. John Murray, who came to America in 1770, and of the Rev. Hosea Ballou. The Winchester Profession of Belief was adopted in 1803 as the expression of Universalist faith. The church in 1902 had 750 ministers, 979 parishes, and 52,818 families, including a total membership of 53,508, a gain of more than 600 for the last year. The Sunday school members number 56,374. The value of parish property, less debt, is placed at $10,158,453; and the total of parish expenses and contributions for 1902 was $1,215,232. Thirteen new churches were erected or purchased during the year; the amount received for the twentieth century fund reached $60,069; and the receipts for the Japan mission exceeded those of the previous year by $1524. A new church has been erected in Tokio and is almost ready for service, and in the same city ground has been secured for a girls' home to cost $3000. Two missionaries were employed in Japan during 1902. The financial summary of receipts for the year shows a grand total, covering the various activities of the denomination, of $1,431,787. Of this sum, $127,561 was contributed for missions, and $64,275 was in gifts to the educational institutions, numbering seven in all. Permanent funds to the amount of $903,661 are held by the church, those under the general convention aggregating $352,570. The general convention, the sessions of which are biennial, will meet in Washington, D. C., October 21, 1903. President, Hon. William D. Washburn; secretary, Rev. G. L. Demarest, D.D., Manchester, N. H.

UNIVERSITIES, AMERICAN, ASSOCIATION OF, held its third annual meeting at Columbia University, December 29-31, 1902. The chief topics discussed were the certificate method of admission to colleges and universities in the case of accredited schools and of schools not examined by the university or formally accredited; the requirements for admission to professional schools; the uniformity of university statistics of enrollment and expenditures. Mr. J. H. Parkin, the agent of the Rhodes scholarship trustees, was present at the session and indicated the desire of the trustees for information as to the educational conditions in the United States, and for suggestions as to the administration of the scholarships. Officers for 1902-03: President, University of Chicago; vice-president, Leland Stanford, Jr.; secretary, Columbia; additional members of the executive committee, Princeton and Catholic University of America.

UNIVERSITIES AND COLLEGES. A question of great importance to the various universities and to the public, and one concerning which the greatest diversity of opinion exists, is that of the status of professional schools. Shall a preliminary degree be required for entrance to professional schools, or shall their work be based immediately upon that of the secondary schools? The discussions of 1902 centred upon this question. Three universities, Johns Hopkins, Harvard, and Columbia, took the position that the professional schools should be graduate schools, and they have placed their schools on that basis, though Columbia will not reach the graduate basis for two or three years yet to come, nor Harvard, either, in the case of the Medical School. This raising of standards means a loss of patronage to the institution and a curtailment of its income. In all probability, however, these disadvantages will be of short duration, and then will result at least as large a body, much better prepared, and consequently the work done will be of a higher character. This is the position of President Eliot, of Harvard, who argues further that the future of our civilization lies in the hands of the learned professions, and that it is the duty of the universities to place these on the highest plane and jealously guard admittance thereto. At the same time, these three institutions recognize that the entire period of preparation is too much prolonged as it now stands both for the prospective professional men and for the community. As a partial solution, preparation for earlier admission to college is urged; and also an abbreviation of the present four-year course for the degree of bachelor of arts. Johns Hopkins has had a three-year undergraduate course, Harvard has

made it possible for the exceptional student, and Columbia has permitted the taking of professional courses in the senior year. On the other hand, Yale and Cornell and all of the State universities have taken the position that no preliminary degree is necessary for admission to professional schools. The great objection urged is that the prospective professional man will be 25 or 26 years of age before he can enter his profession, that he will be 29 or 30 before he is established in it, and that practically family life is denied him to the great detriment of the profession, and of society as well as to that of the individual. It is further argued that many able men, and even the occasional genius will thus be kept out of the professions, which will be more and more restricted to those having wealth and leisure. Further, it is held that a good secondary education furnishes all the liberal training of a general character that is essential not only to success but to proficiency in and mastery of one's specialty. Amid it all it is clear that the old lines between the learned professions of the ministry, law, and medicine, and other professions not necessarily "learned," as engineering, teaching, architecture, etc., are breaking down, and that all professions now require a training adequate to the civilization of the day, and that they are thus on the same plane of learning as the traditional three. President Hadley, of Yale, holds that it is a patriotic duty of that institution to prevent an aristocracy of professions, and to do this by placing them all on the same plane of learning as that of the traditional college course. The University of Chicago has taken a middle ground in making a distinction between the first two years of the college course and of the last two, and of striving to bring the professional schools to the basis of a preliminary two years of liberal collegiate training. Other institutions have secured a similar result by allowing the senior studies to be elected from the professional schools. The entire question precipitated a discussion of much wider import and more spectacular character, which was the feature of 1902.

The Shortened College Course.—Instead of allowing the election of professional subjects in the senior year, a practice has grown up in a great many institutions of allowing the required number of points for graduation to be completed in less than four years' time. Harvard recommended this twelve years ago and has been permitting it, though the candidate has been required to wait until the expiration of the full four years before receiving the degree. In his annual report to the trustees and in various addresses afterward, President Butler, of Columbia, proposed that the present course be cut to two years of a wholly liberal character, and that the latter two years be made professional. The discussion of this proposition brought to light how general the practice has been of allowing a curtailment of the four years' course. Practically all the New England colleges permit this. The new college of Clark University begins its work on a three-year basis; but in the case of the old institutions the work for the three-year degree is in every case the old four-year course completed in a briefer time. Consequently it affects only a small number of students. At Yale since 1886 only six students have graduated in three years. At Tufts, since the adoption of the plan in 1893, thirteen students have succeeded in taking advantage of it. At Wellesley there has only been one; at Dartmouth probably two men each year. At Brown practically the same thing is accomplished by allowing a man to take his A.B. and A.M. at the end of the fourth year. At Harvard, while there has been a gradual rise in standards of admission, there has been also a lessening of the number of courses required for graduates from 21 in 1880 to 17½ (possibly 16) at the present time. Among the other large institutions of the East, Pennsylvania, Yale, and Cornell have announced that the degree will be conferred at the end of three years, when the requisite number of courses are completed. Thus all the colleges have aimed at the same result by one means or another,—either by lessening the number of courses required, by permitting more than one-quarter of them to be done in one year, by granting two degrees at the end of a four years' course, by allowing the senior year to be devoted to professional studies, and finally by cutting off the fourth year. The proposition to cut down the course to two years has met with few supporters among college presidents or professors, save President Butler. In addition to the arguments that a liberal training of collegiate character is an essential prerequisite to a professional course of study, and that the age of entrance to the profession must be lowered by contraction at some stage of the educational system, other arguments for the shortened college course are advanced. It is stated that fully two years of the present course have been added to the typical college course of fifty years ago, and that the college boy now is fully two years older at entrance than was the case half a century ago, so that the abbreviation of the course is a mere return to the old conditions, made all the more desirable now since meanwhile a two or three years' professional course has been added. It is also pointed out that, whereas the professional course was only one or two years in length if any was required fifty years ago, now the law course is for three

years and the medical is four. It is also urged that the very existence of the old-time college is endangered by the expansion of the secondary curriculum and the rapid growth of professional courses based directly on the secondary course. It is held that only by requiring a preliminary degree for entrance to professional schools can the colleges be preserved, and only by abbreviating the four years' course can this in justice be demanded. And yet the abbreviation of the course is most opposed by the smaller colleges and most favored in the larger universities where both college and professional schools exist. Evidently the discussion has just been opened, and it bids fair to continue for some years.

Athletics.—The interest of the year 1902 centred largely around the question of the expense of college athletics and the addition of the number of college sports. The income from the athletic events in each of the larger universities was in the neighborhood of $100,000, and this chiefly from the football games. Out of this great sum Harvard had a surplus in 1902 of $30,000, while Columbia came out with a deficit. This latter, however, is largely due to conditions requiring a very large expenditure for rental of an athletic field. Aside from this, however, there is very sharp criticism both in public and in collegiate circles of the expensiveness of college sports and of extravagance in administering the various sports. The training tables average eight to twelve dollars a week, which is three or four times the usual table expense of students; special trains or cars are chartered, and in various ways needless expense incurred. Two improvements are noted, both made at Columbia during the past year. The first of these is the use of graduates for professional coaches, as has been done at Yale and some other institutions for a long time. The second is the definite supervision of athletic expenditures by a faculty committee. The plan followed at Columbia is for each student organization to submit an estimate of expense for any future event with a guarantee of sufficient funds to meet this estimate. In such way both extravagance and debt are avoided. President Eliot emphasizes the fact that the number of competitive college sports has so increased that there is now a constant succession of them throughout the scholastic year, and that "the distraction of large bodies of students from the proper work of a university grows more intense and continuous year after year." This exaggeration of sports has become a serious drawback to secondary schools. President Eliot further charges, "In the college scientific school the afternoons of many students during the greater part of the year are devoted to play or to looking at the games which the most expert athletes are playing." The range of elective studies of the college is seriously limited because of the desire of students, and therefore of teachers, to avoid appointments in the afternoon. One favorable result, however, of this extension of games is the participation of a greater number of students than hitherto. Of the 3500 students in the regular student body at Harvard, more than 2000 took active part in one or more of the thirteen sports in which enumeration of the participants was made.

The Rhodes Scholarships.—The most remarkable as well as the largest gift to education in 1902 was the legacy of Cecil Rhodes (*q.v.*). He left about one-third of his estate for the establishment of scholarships at Oxford University to be apportioned as follows: Rhodesia 9, Cape Colony 12, Natal 3, Australia 18, New Zealand 3, Canada 6, Newfoundland 3, Bermuda 3, Jamaica 3, United States, 2 to each State and Territory, Germany 15. The Colonial and American scholarships have each an annual value of £300, and the German a value of £250, and are tenable at any college in the university for three consecutive academic years. The details of the scheme were not worked out, but were left to the executors. No system was provided for the selection of these students in the United States, but one is being devised by the educational and political authorities. In some States the appointments are to be made by the governors, and in some, on recommendation of university or other educational authorities. Great diversity of opinion has been expressed as to the probable outcome of the scheme, but probably Mr. Rhodes had greater expectations than will ever be realized. The aim, as stated in the will, was to strengthen the friendship between the two countries and to build up a great Anglo-Saxon—or even Teutonic—community of sympathies and interests. At best, the United States will be represented at Oxford by about one hundred students, about one-third of whom may be expected to return each year. The selections are to be based on: First, scholarship; second, qualities of manliness and personal character; third, qualities of leadership and apparent fitness for public life; fourth, physical qualities as shown in proficiency in sport. Dr. George R. Parkin, principal of Upper Canada College, Toronto, was appointed by the trustees to draw up a scheme for giving effect to the scholarship provisions.

Gifts.—Aside from the Rhodes gift, there were in 1902 no gifts on so large a scale as those of Mr. Carnegie and Mrs. Stanford in 1901. The University of Chicago has received an additional million from Mr. Rockefeller, which will be used for the most part in establishing a school of technology. The gifts of Mrs.

Phœbe Hearst during 1902 brought her gifts to the University of California during the past two years up to $900,000. Pennsylvania, Yale, Harvard, and Columbia received about one million each from a great variety of sources. In several cases these represent the largest annual increase of funds ever received by these institutions. Teachers College (Columbia University) received about $750,000, two-thirds of which was given by Mr. Rockefeller. Constant successions of small gifts to smaller institutions were a characteristic of the year, and indicate a growing custom. The president of Columbia called for $10,000,000 to secure the pressing needs of the institution, and the president of Princeton for $12,500,000 to place that institution on a broad university basis.

Changes in Presidencies.—The year 1902 was marked by an unusually large number of changes in administrative heads of universities. At Columbia Dr. Nicholas Murray Butler succeeded Seth Low; at Princeton, Dr. Woodrow Wilson replaced President Francis L. Patton; Prof. Edmund J. James, formerly of the department of political science in the University of Chicago, was elected to the presidency of Northwestern; President Joseph E. Swain, of Indiana University, resigned to accept the presidency of Swarthmore College, and Prof. E. E. Bryan of the faculty was advanced to the presidency; President Frank Strong, of the University of Oregon, was called to the Kansas State University; Carroll D. Wright, United States Commissioner of Labor, accepted the presidency of the newly organized college of Clark University. Prof. Henry C. King was chosen from the faculty at Oberlin to fill the presidency made vacant by the death of President John Henry Barrows. Professor E. A. Birge was chosen acting-president of the University of Wisconsin; Dr. G. E. Fellows, of the University of Chicago, was elected president of the University of Maine; Prof. Luther Foster from the faculty of the University of Wyoming became president of the New Mexico College of Agriculture; Dr. D. F. Bradley was installed as president of Iowa College; Rev. G. P. Benton went from the presidency of Upper Iowa University to that of Miami University; Rev. Normal Plass was elected to the presidency of Washburn College, Topeka, Kan.; J. W. Abercrombie to that of the University of Alabama; and Prof. George H. Denny to the presidency of Washington and Lee University.

Attendance and Classification of Students.—A noticeable feature is the continued increase in university attendance. There are now more than a dozen universities that open the year with upwards of two thousand students in attendance. This increase is due largely to the marked increase in the professional schools, especially the scientific schools. The registration figures for the full term of 1902 show a decrease in law and medicine, but this is due to the raising of standards of admission at Columbia and Harvard. There is a slight increase in the total number of

	California.	Chicago.	Columbia.	Cornell.	Harvard.	Indiana.	Johns Hopkins.	Leland Stanford.	Michigan.	Minnesota.	Missouri.	Nebraska.	Northwestern.	Pennsylvania.	Princeton.	Wisconsin.	Yale.
College arts, men	.....	494	488	} 817	1983	660	164	729	655	489	} 499	374	325	461	773	} 1057	1236
College arts, women	2214	535	335		451	385	....	468	598	638		533	272	....	....		....
Scientific schools*	.....	....	619	1046	549	....	....	§	472	439	409	369	....	356	466	500	624
Law	100	....	439	197	628	135	....	§	821	490	137	145	175	386	...	259	246
Medicine	161	257	805	415	506	....	229	....	474	386	89	14	488	556	....	.....	148
Agriculture	†	....	.....	86	32	....	....	....	...	605	87	58	....	....	....	443	.....
Art	178	....	.....	....	....	....	....	....	....	....	.....	38	....	....	....	.....	66
Dentistry	141	....	.....	.....	105	....	....	...	200	104	.....	.....	555	365	....	.....	.....
Divinity	.....	192	.....	.....	87	....	....	....	....	.....	.....	.....	175	....	....	.....	98
Forestry	....	....	.....	38	....	....	....	....	....	....	.....	.....	....	....	....	.....	30
Music	.....	....	.....	.....	....	...	....	....	....	.....	.....	238	215	....	....	134	69
Pharmacy	85	....	.....	.....	....	....	....	....	62	73	.....	.....	184	....	....	31	.....
Teachers college	‡	95	568	.....	....	....	....	....	....	.....	123	.....	....	....	....	.....	.....
Veterinary	.....	....	.....	51	....	....	....	....	....	....	.....	.....	....	78	....	.....	.....
Graduate schools	203	404	500	183	312	51	174	86	93	170	‖	86	....	179	123	127	329
Courses for teachers	.....	....	900	.....	....	50	....	....	....	.....	...	.....	....	202	....	.....	.....
Summer session	799	1750	579	424	982	453	....	48	418	302	507	256	....	....	....	372	.....
Other courses	.....	...	23	77	...	233	110	....	64	.....	26	21	50	....	....	.....	27
Deduct double reg	[191]	[?]	[222]	[20]	[10]	[?]	[1]	....	[41]	[160]	[245]	[229]	[?]	[10]	....	[168]	[166]
Grand total	3690	3727	5034	3314	5575	1967	678	1333	3816	3536	1632	1903	2439	2573	1362	2755	2707
Teaching staff	250	202	466	387	483	78	143	164	239	260	?	?	244	272	90	179	290

* Includes schools of engineering, chemistry, architecture, mines, and mechanic arts.
† Included in scientific schools.
‡ Included in college statistics.
§ Included in college statistics; 170 law students are enrolled.
‖ Included in college and scientific schools statistics. About 40 graduate students enrolled.

graduate students. The relative rank of the universities on the basis of the total enrollment is as follows: Harvard, Columbia, Michigan, Chicago, California, Minnesota, Cornell, Wisconsin, Yale, Pennsylvania, Northwestern, New York, Indiana, Nebraska, Missouri, Princeton, Stanford, Johns Hopkins. On the basis of enrollment in the faculties of arts and sciences the relative rank is as follows: Harvard, California, Cornell, Yale, Michigan, Minnesota, Wisconsin, Columbia, Nebraska, Princeton, Stanford, Indiana, Chicago, Missouri, Pennsylvania, Northwestern, Johns Hopkins. In graduate enrollment the rank is as follows: Columbia, Chicago, Yale, Harvard, California, Cornell, Pennsylvania, Johns Hopkins, Minnesota, Princeton. The foregoing table gives details of registration for the year 1901-02.

UPSON, ANSON JUDD, an American educator and clergyman of the Presbyterian church, died at Glens Falls, N. Y., June 15, 1902. He was born at Philadelphia, Pa., November 7, 1823, graduated in 1843 at Hamilton College, studied for the law at Utica, N. Y., and at Hamilton was successively tutor (1845-49), professor of rhetoric and moral philosophy (1849-53), and professor of rhetoric only (1853-70). Having been ordained to the Presbyterian ministry in 1868, he held the pastorate of the Second Presbyterian Church of Albany, N. Y., from 1870 to 1880. From 1880 to 1887 he occupied the chair of sacred rhetoric in the Auburn Theological Seminary, and subsequently was professor emeritus. He was vice-chancellor of the University of the State of New York from 1890 to 1892, and chancellor from 1892 until his death. His writings include sermons, addresses, lectures on historical and literary topics, and articles for periodicals.

URSO, CAMILLA, American violinist, known in private life as Mrs. Frederick Lueres, died in New York City, January 20, 1902. She was born in Nantes, France, and at an early age displayed unusual talent for music. Her first public appearance at the age of seven was followed by three years of study in Paris with Lambert-Joseph Massart, after which, in 1852, she came to America with her father and met with great success at concerts with Marietta Alboni and Henriette Sontag. She traveled extensively through Canada and Europe, was heard again in New York City, in 1866, and after a brief retirement from professional work following her marriage, returned to the concert stage with her former success.

URUGUAY, the smallest South American republic, lies on the Atlantic coast, between Brazil and Argentina. The capital is Montevideo.

Area and Population.—The estimated area is 72,210 square miles. According to the estimate of December 31, 1901, the inhabitants numbered 954,416. In 1901 there were 9620 immigrants (mostly Italians and Spaniards) and 6664 emigrants.

Government.—The executive authority is vested in a president, assisted by a cabinet of five members. The legislative power devolves upon a congress of two houses, the senate and the chamber of deputies. The president in 1902 was Señor Juan Lindolfo Cuestas, who was elected for the four-year term ending March 1, 1903. The regular army comprises about 3500 officers and men. The navy is inconsiderable.

Finance.—The monetary standard is gold and the unit of value the peso, worth $1.034. Revenue for fiscal years has been as follows: 1898, 15,200,000 pesos; 1899, 15,752,542 pesos; 1900, 15,141,554 pesos; 1901, 15,440,825 pesos. In the last two years customs receipts (import and export) amounted to 9,433,269 pesos and 9,654,442 pesos respectively. Statistics of expenditure are not available; the estimates, however, for the fiscal year 1901 were 16,124,373 pesos, and for 1902, 16,160,996 pesos. On June 30, 1902, the public debt amounted to 123,858,345 pesos, of which 98,802,084 pesos represented the foreign consolidated debt. The service of the debt in 1901, including interest 4,911,271 pesos, amounted to 6,902,557 pesos.

Industries and Commerce.—The raising of sheep and cattle is the most important industry, and wheat and corn are the leading agricultural products. Imports and exports in pesos have been as follows:

	1898	1899	1900	1901
Imports	24,784,360	25,652,788	23,978,206	23,691,932
Exports	30,276,916	36,574,164	29,410,862	27,731,126

In 1901 the chief imports were: Raw materials and machinery, 7,755,510 pesos; food products and groceries, 5,129,837; textiles, 3,936,184; beverages, 2,284,627; ready-made clothing, 954,333; live animals, 822,713. The leading exports were: Animal products, 25,931,115 pesos (26,605,662 pesos in 1900); agricultural products, 572,668 (1,669,523 in 1900); live animals, 473,422 (534,216 in 1900). The falling off in agricultural products was due largely to unfavorable climatic conditions (causing, especially, a poor wheat crop); while the decline in animal products was accounted for by the greatly reduced shipments of jerked beef. The wool export increased notably (8,662,000 pesos). Though the final figures were not available, it

was stated that commerce in 1902 showed a decided improvement over that of the preceding year. In 1901 the imports from and the exports to the countries of greatest trade importance were valued in pesos as follows:

	Imports.	Exports.		Imports.	Exports.
Great Britain	6,167,348	2,270,094	United States	2,077,750	1,938,128
Argentina	3,074,753	4,339,587	Spain	1,860,762	615,086
Germany	2,913,587	3,195,124	Brazil	1,540,955	4,454,250
France	2,161,139	4,925,604	Belgium	1,424,008	4,188,009
Italy	2,108,469	482,818	Cuba	99,615	463,475

The trade with Argentina consists principally of goods in transit. In the eleven-year period, 1891-1901, imports amounted in round numbers to 249,000,000 pesos and exports 330,000,000 pesos. In 1902 there were in operation 1208 miles of railway.

History.—In July, 1902, President Cuestas ordered the banishment of Senator Dominguez and Senator Mendoza, and the arrest of General Esteran and several other officers, charging them with conspiring to assassinate him. After considerable friction with the congress, the president, who defended his unconstitutional action on the ground of urgency, withdrew the decree. No convincing proofs of conspiracy were forthcoming. President Cuestas, though unpopular particularly with his own party, the Colorado, has done much toward political and administrative reform, and "has made it possible for his successors to rule uprightly." He has been arbitrary and at times probably actuated by personal spite, but, on the whole, his influence and efforts have been for good.

UTAH, a western State of the United States, has an area of 84,970 square miles. The capital is Salt Lake City. Utah was organized as a Territory September 9, 1850, and admitted as a State on January 4, 1896. The population in 1900 was 276,740, while in June, 1902, as estimated by the government actuary, it was 290,000. Salt Lake City is the largest city, with a population in 1900 of 53,531.

Finance.—There were in the treasury on December 31, 1901, $620,359.63. The total receipts during 1902 were $1,434,256.47 and the expenditures $1,464,865, leaving a balance on December 31, 1902, of $589,751.07. The main items of revenue and the amounts derived therefrom were: State officers' fees, $76,058.65; taxes, $856,127.08; temporary loans, $100,000 (repaid); from the United States government for the maintenance of the agricultural college, $25,000; and from insurance premiums, $18,570.72. The total debt at the end of 1902 was $900,000, all of which was funded. There was no increase or reduction of the debt during the year.

Agriculture and Industries.—The principal field crops of Utah for 1902, according to the *Crop Reporter*, were: Spring wheat, 176,824 acres, 3,748,669 bushels, $2,848,988; oats, 44,970 acres, 1,596,435 bushels, $750,324; barley, 8466 acres, 271,759 bushels, $160,338; potatoes, 10,609 acres, 1,665,613 bushels, $749,526; hay, 337,721 acres, 884,855 tons, $6,477,139. The beet sugar produced in 1902 amounted to 15,625 tons, valued at $1,106,875, an increase of 25 per cent. over 1901.

The State ranked fifth in sheep raising. The wool clip for 1902 amounted to 17,553,520 pounds, worth approximately $2,280,000. Utah ranked third in the production of silver in 1902 and seventh in production of gold. The greatest development of the year was in copper mining.

Conventions and Platforms.—At the Republican State Convention, the platform declared against trusts and in favor of federal control of interstate commerce. The idea of arbitration to avert strikes was approved and laws that would prevent the unjust raising of prices and lowering of wages were urged. The platform adopted at the Democratic State Convention denounced trusts and the beet-sugar opposition to Cuban reciprocity. The Kansas City platform was indorsed without any mention of the name of William J. Bryan.

Elections.—At the regular State election held November 4, 1902, the Republican candidate for justice of the Supreme Court, McCarty, was chosen over Young, Democrat, by a vote of 43,214 to 38,433, giving McCarty a plurality of 4781. The State legislature for 1903 will consist of 11 Democrats and 52 Republicans.

State Officers.—For 1902 and 1903: Governor, Heber M. Wells (elected for four years, term ending January, 1905); secretary of state and commissioner of insurance, J. T. Hammond; treasurer, J. D. Dixon; auditor, C. S. Tingey; attorney-general, M. A. Breeden; superintendent of education, A. C. Nelson—all Republicans.

Supreme Court: Chief justice, R. N. Baskin; associate justices, George W. Bartch and W. M. McCarty.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

VAN BENSCHOTEN, JAMES COOKE, an American Greek scholar, died in Middletown, Conn., January 17, 1902. He was born in La Grange, N. Y., December 15, 1827, graduated at Hamilton College in 1856, and at Madison University, now

Colgate, from which he received his master's degree in 1857. After teaching Greek and Latin at the Oxford Collegiate Institute and the Susquehanna Seminary, he acted as principal of the former from 1857 to 1858, and then studied at various European universities and traveled in Greece until 1861. Upon his return to America he became principal of the Lyons (N. Y.) high school, taught the classics at the Cazenovia (N. Y.) Seminary from 1862 to 1863, and from June, 1863, until his death filled the chair of Greek language and literature at Wesleyan University. During his visit to Athens he was instrumental in obtaining from the Greek government the gift of the site for the American School of Archæology. He was a member of several continental classical societies, president of the Connecticut branch of the Archæological Institute of America, and an honorary fellow of the Metropolitan Museum of Art. In 1875 he received the degree of LL.D. from Rochester University.

VAN SANT, Samuel R., re-elected governor of Minnesota in November, 1902, attracted wide attention earlier in the year by his opposition to the Northern Pacific-Great Northern merger. He was born at Rock Island, Ill., May 11, 1844, and was attending the Rock Island High School when the Civil War broke out. He left school and enlisted in the Ninth Illinois Cavalry, with which regiment he served in the ranks throughout the war, seeing considerable active service. After the war he studied for two years at Knox College, Galesburg, Ill., later engaged in the steamboat business on the Mississippi River, served for many years as captain of a river steamboat, and eventually became manager and part owner of several lines. He made his home in Winona, Minn., where he became prominent in Republican politics, was elected to the State legislature in 1892, 1894, and 1896, and was unanimously chosen speaker during his last term. He became the leader of the anti-machine Republicans, and was their candidate for governor in 1896 and 1898, but was defeated for the nomination each time by the organization candidate. The election of John Lind, the Fusion candidate for governor in 1898, however, made it necessary for the Republicans to nominate the strongest possible candidate in 1900, and the choice fell on Van Sant, who was elected by an unprecedented majority. His first term as governor was so notable for its straightforwardness and justice that a second nomination was accorded him in 1902 with practically no opposition.

VASSAR COLLEGE, Poughkeepsie, N. Y., founded 1861, had in the academic year 1901-02 an attendance of 862 and a faculty of 77. The endowment was $994,054, and the income, including board and tuition, was $372,286. There were 50,000 volumes in the library. During the year the college received the gift of a large chapel and the promise of a large library, to be erected during 1903. A chair of biblical literature was established, and instruction in Spanish was added to the work of the Romance department.

VENEZUELA, a republic of South America, lying on the Caribbean Sea, between Colombia and British Guiana. The capital is Carácas.

Area and Population.—The area of the republic is estimated at about 535,000 square miles, and the population, including the region definitely assigned to the colony of British Guiana by the award of 1899, amounted in 1894 to about 2,444,816. The populations of the principal cities in 1894 were: Carácas, 72,429; Valencia, 38,654; and Maracaibo, 34,284. The Roman Catholic is the state church. Primary instruction is free, and nominally compulsory.

Government and Finance.—The executive power is vested in a president, who is assisted by a cabinet and a federal council, the members of which are elected by the congress every two years. The council, from its own members, chooses a president who is also president of the republic. The legislative power is vested in the congress of two houses, the members of which are elected by direct popular vote. The present chief executive is Cipriano Castro, who became president after the overthrow of the Conservative government of Andrade in 1899.

The monetary standard is gold, and the unit of value, the bolivar, worth 19.3 cents. The revenue and expenditure balanced in the budget estimates of 1902 at 37,000,000 bolivars. The principal source of revenue is customs duties, placed in the estimates at 21,330,000 bolivars. The total foreign debt of Venezuela (1901) amounted with arrears of interest, to £5,171,148. The outstanding internal debt, in the same year, amounted to 110,000,000 bolivars.

Commerce, Industries, etc.—Coffee-growing is the principal industry, Venezuela being, next to Brazil, the largest coffee producing country in the world. The export of coffee at the principal ports in 1900 amounted to 46,139 tons (46,138,859 kilogrammes). Sugar, cocoa, and rubber are also produced. Cattle-raising is carried on extensively, and the mineral products, including gold, silver, copper, and iron, are worked, but not to the best advantage. The gold production in the Yuruari territory amounted in 1899 to 42,315 ounces, which was much below the average obtained a few years previously. The pearl fisheries of Margarita Island, and the

asphalt deposits in the Bermudez district are of considerable importance. Lumbering, cattle-raising, and fisheries engage a large number of the inhabitants. There are practically no manufacturing industries. The imports and exports, which have fallen off considerably in the past few years, owing to the prevailing civil war, amounted in 1898 to 42,797,500 bolivars and 74,497,550 bolivars respectively. Trade is largely with Great Britain, United States, and Germany. There were 529 miles of railway in operation in 1899.

HISTORY.

The Progress of the Revolution.—Early in January, 1902, the rebel steamer *Libertador*, formerly the British ship *Ban Righ*, carried the insurgent leader, Matos, from Trinidad, from which place he had been directing the revolt during the late months of 1901, to the Venezuelan coast near the Colombian border, where it was understood that he was in conference with some of the officials of the Conservative government in Colombia, that had a Liberal revolt on its hands. There was fighting between the rebels and Castro's forces during January on the peninsula of Paraguana, in which the rebel troops were generally successful. Castro's position seemed to be daily growing more desperate; he had given up all attempts to aid the Colombian Liberals, and spent all his time devising methods and means to meet the growing revolution at home. Through February the revolt continued to gain strength and new uprisings were reported almost daily. On February 20 the Venezuelan congress met and approved Castro's election as president for a four-year term. On February 24 the defeat of the rebel, Barbira, at Las Cumbres brightened the government's hopes, and the announcement from Paris that diplomatic relations had been resumed with France seemed to better somewhat the international outlook. During March and April the rebels continued active, and it was rumored that Germans were supplying arms and ammunition to Matos. Early in May Castro began gathering his forces at Barcelona, marched against Cumana and captured it, and bombarded Carupano. Later in the month he reconstructed his cabinet, began suppressing unfriendly newspapers and making wholesale arrests, and forced loans. His activities caused the concentration at La Guayra of warships of France, Great Britain, Germany, and the United States to protect foreign interests. There was little fighting and practically no change during the months of June and July, except that although Matos took the field in person, and was said to have 10,000 men under him, Castro's position seemed to be somewhat stronger. On August 3, however, the tide set in the other way. The rebels under General Monagas attacked, and after three days' fighting took Barcelona, and a few days later also captured Porto Cabello. Castro was then practically hemmed in at Carácas and his cause looked hopeless indeed. During the second week of September a four days' fight at Tinaquilla resulted in another rebel victory. Castro then collected his forces for a last stand and, in a fierce battle near Victoria, on October 13, checked the rebel advance. On the second day Castro was reinforced and assumed the offensive, led charges in person, and after five days' continuous fighting compelled General Mendoza, the rebel commander, to withdraw. A fortnight later the revolution was apparently over, Matos had fled to Curaçao, and Castro and his army re-entered Carácas in triumph. The rebel forces which had so recently controlled almost all the important points in Venezuela seemed suddenly to have melted away. Whatever the cause the revolt certainly appeared to have collapsed. But it was simply the clearing of the stage for a new and more important act in which new actors were to play the leading parts.

Venezuela and the Powers.—There have been—according to the statement of some one who was interested enough to count—no less than eight revolutions in Venezuela in the past five years, and claims for damages had naturally accumulated. The presentation of these claims by France, Germany, and Great Britain had little effect. They ranged from seizures of shipping and ships' cargoes and destruction of foreign property during revolutions to non-payment of interest and principal on investments that had been made by foreign capitalists who were apparently willing to take their chances in the country in view of the extortionate charges they could exact. Theoretically, in international law, there is no limit to the extent and freedom with which one country may be called upon to assert claims against another for losses by adventurous capitalists or traders who have taken speculative chances in a notoriously revolutionary country. And of this latter character are most of the claims which European powers have been, for several years, pressing President Castro to pay.

The British and German Claims.—At the beginning of 1902 Castro's foreign secretary had, filed away in his office, great bundles of unsatisfied claims made principally on behalf of citizens of Germany, Great Britain, France and the United States, although other countries were largely represented. When, late in the year the crisis finally came, only the first two, and Italy, went to the extreme of employing force, France having arranged during the summer for a settlement of her claims by a

mixed commission, and the United States government being opposed from policy to acting as a collector of bad debts for its too speculative citizens. In general, Great Britain has followed the latter policy also, so that had there not been other apparently good reasons for interfering, it is doubtful if the claims of her investors would have been so forcibly supported, even by the Balfour ministry. The German claims were almost entirely demands for money damages for property of German citizens destroyed during the revolutions or for payment for public works, principally railroads in which German capital was largely invested. As early as 1895 the Germans had begun to invest heavily in Venezuela, establish commercial houses in its ports, and buy up coffee plantations in the interior. As time passed other avenues for the investment of German capital appeared. In 1896, a German bank, the Berliner Disconto Gesellschaft, made an arrangement to supply the funds for the construction of the Venezuelan Central Railway, whereby it advanced the sum of 50,000,000 bolivars at 5 per cent. for 30 years, Venezuela pledging its customs for security. The road, 200 miles long, was built by a German firm, to whom Venezuela paid 36,000,000 bolivars, guaranteed 7 per cent. on the capital invested, and pledged itself to set aside annually the sum of 3,000,000 bolivars as interest, and to provide for the amortization of the debt. Then the Germans capitalized the road at $20,000,000 (American) and sent in the bills for the 7 per cent. payments. These payments were not made, and Castro, who succeeded to this legacy of debt from those he drove from power, is even less inclined to pay than his predecessors. To the 6,000,000 bolivars defaulted interest on the railway bonds, Germany added, in making up her statement of claims at the beginning of 1902, another 2,000,000 bolivars, as damages sustained by other German citizens in losses through destruction of property and forced loans, making a total claim of 8,000,000 bolivars. The greater part of the British claims dealt with the seizure of fishing smacks and coast-traders from the neighboring British colony of Trinidad by Venezuelan *guarda costas*, on the general but never verified ground that they were smuggling or carrying aid to the insurgents. The matter was complicated because some of the seizures were made near the little islands of Patos, off the Trinidad coast, the possession of which has long been a matter of dispute between Great Britain and Venezuela. Great Britain had also various rather indefinite complaints as to the action of the Venezuelan consul at Trinidad, and behind all the other claims—so far behind, indeed, that Mr. Balfour forgot to include them in the list of British claims which he recited for Sir Henry Campbell-Bannermann's enlightenment in the House of Commons—were certain claims of British bondholders who, like the Germans, found that they had made bad investments. Early in 1902, however, an incident occurred that gave Venezuela an opportunity to meet British demands at least, with a counter-demand for reparation. This was the affair of the British *Ban Righ*, later renamed the *Libertador*. When the *Ban Righ* was fitting out in London the British authorities were informed that the ship was to enter the service of the Matos revolutionists and recollecting the affair of the *Alabama* they made haste to look into the matter. Relying on the assurances of the Colombian minister at London that the ship was destined for the Colombian service, they allowed the *Ban Righ* to sail, forgetting that the Colombian Conservative government (see COLOMBIA), for whom the minister spoke, was practically, although not officially, at war with the Liberal government of Castro. The *Libertador* née *Ban Righ* proceeded to shell Venezuelan ports as soon as it got across the Atlantic, and worked other very considerable damage to Venezuelan shipping. It was only natural therefore that British demands for damages after that should be met with a refusal on Venezuela's part to pay any further attention to them until an explanation or satisfaction had been given for the conduct of the *Ban Righ*.

The Course of the Negotiations.—As early as December 11, 1901, the German ambassador at Washington presented a note to Secretary Hay, in which he set forth the hopelessness of further proceedings by negotiations, suggested that coercive measures might be necessary to collect German debts, among which the claims arising from the civil war should be first considered, and concluded with a tacit acknowledgment of the force of the Monroe Doctrine by assuring the United States that the "acquisition or permanent occupation of Venezuelan territory" was not intended. To this Secretary Hay replied, expressing the President's pleasure at "the voluntary and friendly declaration" of the German emperor's purpose, and then proceeded to assure him diplomatically that he would be taken at his word. The first six months of 1902 passed without any satisfaction being obtained by either Germany or Great Britain. On July 23, Lord Lansdowne, the British foreign secretary, and Count Metternich, the German ambassador at London, had a talk about Venezuelan affairs, in the course of which Lord Lansdowne replied to a question of the ambassador that he was "quite ready to confer with the German government with a view to joint action." Then, further stirred by seizure of the British ship *Queen* en route from Grenada to Trinidad, Lord Lansdowne directed Mr. Haggard,

THE VENEZUELAN TROUBLE—(Upper Left) President Castro. (Upper right) Herbert W. Bowen, United States Minister (Lower) Scene in Caracas. (*Courtesy, Collier's Weekly*)

the British minister to Venezuela, to address a formal protest to the Venezuelan government, informing them that unless prompt compensation were made, Great Britain would take steps to exact reparation. Minister Castro's chief of the foreign office received the protest with the remark that he was "used to receiving such communications," and on August 2 made a formal reply, expressing Castro's surprise at the tone of the British note and again declining to give any attention to British demands until Great Britain took some action on Venezuela's claims growing out of the *Ban Righ* episode. On August 8, Germany suggested a joint naval demonstration, and Lord Lansdowne with this end in view laid the matter before the Admiralty. The Admiralty thought that the most "convenient time" for the demonstration would be toward the end of November, when the British vessels employed off Newfoundland during the fishing season could be utilized. In this delay Germany concurred for the additional reason that the summer tropical sun was severe on German-bred seamen. On October 22 Lord Lansdowne's suggestion that both Germany and great Britain should at once address notes to Venezuela which should convey the intimation that if evasion of their demands continued the Powers would be compelled to resort to force was accepted by Germany, and, on November 11, the notes were delivered. A dispatch of Lord Lansdowne of the same date to Mr. Buchanan, British chargé d'affaires at Berlin, contains the information that an agreement had been reached that the joint naval demonstration should begin with a seizure of all Venezuelan gunboats, to be followed by a blockade should that prove necessary. Lord Lansdowne concluded that although there was "a sharp distinction between the character of the British and German 'first-line' claims, nevertheless the two claims ought to stand or fall together, and we ought to exclude the possibility of a settlement between Venezuela and one of the two Powers without an equally satisfactory settlement in the case of the other." And thus came about the binding of England "hand and foot," of which the Liberals in Parliament complained. On November 17 Lord Lansdowne, replying to a German request that British claims be classified, said that Great Britain preferred to obtain a general settlement, but nevertheless suggested a classification which should place interference with the liberty and property of British subjects first, damages due to the civil wars second, and claims of bondholders last. On November 18 Venezuela's reply to the last note was received. It proved to be simply a refusal to listen to British demands until the *Ban Righ* matter was attended to, and ended with a complaint of "the unfair refusal of His Majesty's government to consider the matter." On November 22 Castro issued a statement that as soon as domestic peace was fully restored the government "would discharge its just obligations, improve its credit, and reorganize the fiscal system." At the same time negotiations were opened with the New York banking house of the Seligmans to arrange for a settlement of all foreign obligations. But it was too late. The Anglo-German combination was already in motion, and warships of the two countries were gathering on the Venezuelan coast.

The Ultimatums and the Blockade.—The naval plans of the Powers were perfected by December 7, and on that day the British minister, W. H. D. Haggard, and the German chargé d'affaires, Herr von Pilgrim-Baltazzi, leaving the ultimatums of their respective countries with Castro's foreign minister, left Caracas for La Guayra, where each went on board a cruiser of his own nationality. The interests of the two governments were intrusted to the care of Mr. Herbert W. Bowen (*q.v.*), the American minister. On December 9 the allied naval forces in pursuance of the plan adopted seized four Venezuelan gunboats in the harbor of Venezuela, and towed them out into the open sea where all but one of them which had been leased from a French firm were sunk, an act for which the British declared the Germans alone were responsible. On the same day the Venezuelan cruiser *Bolivar* was seized at Trinidad. The result of the allies' action was what might have been expected—the whole country waked to a newly discovered patriotism, and Castro issued a decree of amnesty to all his enemies and gave promise of immediate restoration of property. At the same time wholesale arrests were made of German and British residents in the cities, but on the demand of Minister Bowen they were released on the day following with the explanation that the president had only wanted to put them in "a place of safety, away from the fury of the populace." On December 10 the allies instituted what was said to be a "peaceful blockade" along the entire coast. On December 11 Baron De Riva, the Italian minister, presented an ultimatum from his government, and Italy thus became a party to the international blockade. President Castro after a long conference with Mr. Bowen on December 13 was convinced of the hopelessness of defending himself, and requested Mr. Bowen to submit through the State Department at Washington, a proposal to Great Britain and Germany for the settlement of the difficulties by arbitration. On the same day a Venezuelan mob pulled down the flag of the British steamer *Topaze* in the harbor of Puerto Cabello, as a result of which British and German cruisers got satisfaction by bombarding the fort and custom-house.

The Settlement.—Secretary of State Hay submitted Castro's arbitration proposal to the Powers without comment, but on December 16 he signified that it would be gratifying to the United States if the proposal were accepted. At the same time it was intimated that the United States could not recognize such an anomaly as a "peaceful blockade." On December 17, in the British House of Commons, Sir Charles Dilke elicited from Mr. Balfour the frank declaration that he agreed with the contention of the United States, that there was no such thing as a peaceful blockade, and that therefore a state of war actually existed between Great Britain and Venezuela. On December 20 an effective blockade was officially proclaimed, with a liberal allowance for vessels at sea. The previous day Great Britain, Germany, and Italy informed the United States that they would be willing to submit the differences to arbitration on certain conditions, most important of which was some assurance that Venezuela would accept the arbitrators' award, and acknowledge her liability under it. In acknowledging this decision Secretary Hay said that the latter question could be better decided by negotiation, and suggested that the matter be submitted to the Hague Tribunal. Germany and Great Britain joined on the next day in the request that in case arbitration were arranged President Roosevelt himself become the arbitrator. The President, through Secretary Hay, although signifying his willingness to serve if no one else could be found, suggested again that the questions at issue be submitted to the Hague Tribunal. President Castro, meanwhile, had commissioned Minister Bowen, with the consent of the United States, to proceed to Washington as his representative. He agreed to the principle of arbitration, and promised to abide by it, but preferred that the arbitrator should be the president of some American state, preferably President Roosevelt. On the last day of the year announcement was made of President Castro's acceptance of The Hague Tribunal as a court of arbitration, and the satisfactory termination of the difficulties could then be looked upon as assured.

VERESTCHAGIN, Vasili, a Russian genre and battle-scene painter, was brought again into prominence during 1902 by his exhibition at Chicago of pictures representing war scenes in the Philippines, and by his painting of the battle of San Juan. He was born in Tcherepovets, Novgorod, Russia, October 14 (26), 1842. After studying for a while under Markoff at the St. Petersburg Academy, where his first picture won a medal, and after extended travels through the Pyrenees and Caucasus mountains, he became a pupil of Gérôme in Paris, in 1864. From 1867 to 1870 he was with General Kaufmann in Turkistan; and after a tour through India in 1874-76, which with subsequent visits resulted in a well-known group of Indian pictures, notably "The Future Emperor of India," and "Suppression of an Indian Revolt," he followed the contesting armies in the Russo-Turkish war. He has treated many sacred subjects, and has painted a series of pictures dealing with scenes in Central Asia, which are of great historical and anthropological interest, but his greatest achievements have been in the forcible portrayal of the horrors of warfare. His work is marked by intense realism and has received considerable critical disapproval for its lack of technique, but it has powerfully influenced public sentiment. "Solomon's Wall," "Christ on the Sea of Tiberius," "Jesus in the Desert," and "The Prophecy," are the best known of his religious pictures. Among the more celebrated of his war scenes are "The Pyramid of Skulls," "The Turkish Hospital Before Plevna," "Skobeleff at Shipka," "Assault on Plevna," "All Quiet at Shipka," "Before Moscow," "Napoleon's Retreat from Moscow."

VERMONT, a New England State of the United States, has an area of 9565 square miles. The capital is Montpelier. The population in 1900 was 343,641, while in June, 1902, as estimated by the government actuary, it was 346,000. The largest cities in 1900 were: Burlington, with 18,640 inhabitants, and Rutland, with 11,499 inhabitants.

Finance.—The cash in the treasury on June 30, 1900, was $117,161.20. The receipts for the year ending June 30, 1901, were $1,166,808.80 and the disbursements $1,182,410.07, leaving a balance of $101,559.93. The receipts for the following year were $1,485,088.46 and the disbursements $1,261,679.11, leaving cash on hand at the close of the biennial term ending June 30, 1902, amounting to $324,969.28. Of the receipts for the year ending July 1, 1902, $462,818.62 were received from corporation taxes; $268,522.49 from the State tax of 1901; $143,211.97 from the State school tax of 1902; $89,508.50 from the State highway tax of 1902; and $275,000 from a temporary loan. This loan, however, was covered before the end of the year. In his message to the legislature on October 3, 1902, the governor stated that it appeared to him that without unjustly burdening any interest all the expenses of the State government should be raised by indirect taxation, thus entirely relieving real estate.

Agriculture, etc.—The principal field crops for 1902, according to the *Crop Reporter,* were: Corn, 57,718 acres, 1,258,252 bushels, $855,611; oats, 77,780 acres, 3,111,200 bushels, $1,337,816; potatoes, 27,133 acres, 2,550,502 bushels, $1,479,291; hay, 926,878 acres, 1,177,135 tons, $11,359,353. The dairy products had a value of

$9,321,389. The values of the stone products of Vermont for 1900 were: Granite, $1,113,788; slate, $917,462; marble, $2,484,852; limestone, $188,100; for 1901: Granite, $1,245,825; slate, $1,162,191; marble, $2,753,583; limestone, $205,138.

There were in Vermont on June 30, 1902, 1,061.98 miles of steam railroads, and 81.99 miles of electric railways. There has been no increase in the mileage of steam railroads in the State for the two years since 1900, but curves have been straightened and the tracks improved by heavier rails and better ballasting.

Conventions and Platforms.—The Republican State Convention was held at Montpelier June 19, 1902. In the platform President Roosevelt was indorsed, trusts were condemned, a law regulating primaries for the nomination of town, city, county, and State candidates was called for, and a request was made that the legislature make provision for ascertaining the will of the people by direct vote on the acceptance or rejection of a license and local option law. There was a split in the Republican ranks as a result of this convention, a considerable number of those present being dissatisfied with the methods employed to bring about the nomination of Gen. John G. McCullough, who favored local option, for governor. Those who did not accept that nomination held a convention at Burlington on July 16 and nominated Percival W. Clement, who favored high license. In the platform of this second convention a demand was made that the legislature enact a high-license local-option law, and that the same be submitted to the voters, to become effective only when a majority of the voters have signified their approval. The leaders of the convention inserted a resolution calling upon the legislature to pass a law regulating primaries or caucuses called for the purpose of putting in nomination candidates for office.

The Democratic State Convention was held at Burlington July 24, 1902. It denounced the policy of "benevolent assimilation" and an American colonial system; favored the abolition of all tariffs on trust-made articles; insisted upon the prompt fulfillment of pledges made to Cuba; accused the Republicans of corrupt methods in making nominations for State offices; demanded the passage of a fair local option law; and opposed a referendum on the subject.

Elections.—The gubernatorial contest of 1902 was one of the most interesting and exciting contests ever held in that State. At the Republican caucuses, held June 14, three millionaire candidates for the governorship came out on as many different platforms. Mr. Fletcher Proctor advocated prohibition; Gen. John G. McCullough, local option; and Mr. Percival W. Clement, high license. When the Republican convention met, General McCullough was nominated on a local option platform. Mr. Clement then conducted an independent campaign, and stumped the State, advocating high license. At the regular election held September 2, 1902, the vote stood: McCullough, 31,864; Clement, 28,201; McGettrick (Dem.), 7364; Sherbourne (Pro.), 2498. The Vermont law requires that officers must receive a majority of the votes cast to secure election. As neither governor nor lieutenant-governor received a majority of the total vote cast, the choice fell to the legislature, which met the last week in September. A canvass of the vote for State officers was made under a joint resolution October 1, and it was announced that McCullough had received 164 votes; Clement, 59; and McGettrick, 45; thus electing McCullough, who was inaugurated October 3. All the other State officers chosen were Republicans. In November, a bill calling for a referendum to the voters upon the question of local option as a substitute for prohibition, passed both branches of the legislature. The Prohibitionists, in their attempt to defeat the referendum act, advocated a provision that women should have a voice at the polls in deciding the question. This effort failed by a vote of more than 2 to 1. In the debate considerable support was given to the measure establishing a dispensary system similar to that of South Carolina. The legislature for 1903 will consist of 25 Republicans and 5 Democrats in the senate and 192 Republicans, 48 Democrats, 1 Independent, and 1 representative of the Labor party in the house.

State Officers.—For 1903: Governor, John G. McCullough, elected for two years, term ending October, 1904; lieutenant-governor, Zed S. Stanton; secretary of state, Frederick G. Fleetwood; treasurer, John L. Bacon; auditor, Horace F. Graham; superintendent of education, W. E. Ranger—all Republicans.

Supreme Court: Chief justice, John W. Rowell; associate justices, James M. Tyler, Loveland Munson, Henry R. Start, John H. Watson, Wendell P. Stafford, and Seneca Haselton.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

VIBERT, JEHAN GEORGES, a French painter, died at Paris July 28, 1902. He was born in Paris, September 30, 1840, was a pupil of Barrias and Picot, and first exhibited at the Salon in 1863. In addition to his work in oils, he painted skilfully in water-colors, and he was a founder of the Société des Aquarallistes Français. A clever technician, he was careful in drawing and precise in matters of detail, but in

coloring was not so successful. Among his canvases are "Gulliver" (1870); "The Reprimand" (1874); "The Grasshopper and the Ant" (1875); "Monseigneur's Antechamber" (1876); and "Apotheosis of M. Thiers" (1878), a large work, purchased by the state for the Chamber of Deputies; but later deposited in the Luxembourg. He published *La science de la peinture* (1891).

VICTORIA, a southern state of the Commonwealth of Australia, has an area of 87,884 squares miles and a population, according to the census of 1901, of 1,200,914, an increase of less than 5 per cent. over 1891. Melbourne, the capital, has a population of 493,956. Other large towns are Ballerat, 46,410, and Bendigo, 43,112. Primary education is compulsory and free, the enrollment in the state schools in 1899 being 239,732. Private schools enrolled 52,318.

Government and Finance.—The executive power is vested in a governor (Sir George Lydenham Clarke since 1901), appointed by the crown, and assisted by a responsible ministry of 10. The legislative power rests with a parliament consisting of a council and an assembly, both elective. The revenue for the fiscal year 1902 was £6,995,753 and the expenditure £7,433,364, leaving a deficit of £437,611, that was reduced to £330,611 by the deduction of the surplus of £107,000 from the previous year. The estimates for the fiscal year 1903 placed the revenue at £6,980,950 and the expenditure at £7,431,670. The sum of £300,000 spent for old-age pensions is one of the principal items in the expenditure. To meet the deficit it was proposed to lower the income-tax minimum in order to include incomes of £150 instead of £200, as at present, to reduce the personnel of the civil service, and lower all government salaries from 3 to 10 per cent. On June 30, 1902, the debt was £53,306,000, of which £45,648,000 represented reproductive works, largely railways.

Industries, Commerce, etc.—The yield of the principal cereal crops in 1901 was: Wheat, 17,847,000 bushels; oats, 9,582,000 bushels; and barley, 1,215,000 bushels. In 1900, 2,578,126 gallons of wine were produced. Victoria is the second gold-producing state in Australia, but owing to the drought the output has fallen, being in 1901 only 789,562 ounces, as compared with 854,500 ounces in 1899. Tin, copper, coal, and antimony are also mined. Dairy products are important, 465,469 milch cows in 1900 producing 55,604,118 pounds of butter and 4,284,170 pounds of cheese. The number of sheep in 1899 was estimated at 12,300,000, but the drought has naturally wrought havoc in the live-stock industry. The manufactures are mainly for home consumption. In 1901 the value of the imports was £18,301,811, and of the exports £17,422,552. The chief items of export were wool, gold, butter, wheat, oats, live-stock, and live-stock products. On June 30, 1901, there were 3,221 miles of railway in operation, all belonging to the state.

HISTORY.

A Political Crisis.—On May 5, 1902, Premier Peacock received the collective resignations of his cabinet, but the personal difficulty that had led them to resign having been settled, they consented, at his request, to remain in office. On the meeting of parliament later in the month an extensive programme of constitutional reform was proposed. On June 3 Mr. Irvine brought up the question of the ministry's resignations, declaring that they were remaining in office contrary to the constitution. A resolution of censure was then passed by the assembly by a vote of 45 to 42, whereupon Premier Peacock and his colleagues resigned. A new cabinet was immediately formed by Mr. Irvine as follows: Premier and attorney-general, W. H. Irvine, treasurer, W. Shiels; minister of labor, John Murray; education and public health, R. Reid; mines and water supply, E. H. Cameron; agriculture and public-works, J. W. Taverner. Premier Irvine at once outlined his legislative programme, which included the reduction in membership of the cabinet, council, and assembly, a general scaling down of salaries, retrenchment in every administrative department, and increase of taxation.

The "Civil Servants."—But the reform premier had not progressed very far in his policy of retrenchment before he encountered a most serious obstacle in the opposition of the "civil servants," who, in socialistic Victoria, are a very considerable body numerically. It was just such a crisis as one would have looked for in a state which has carried to extremes, surpassed only by New Zealand, a policy of owning and running public utilities for the benefit of the employees rather than the public. Mr. Irvine's reform bill, introduced in August, 1902, provided for stopping all increments of salaries to civil servants and for a percentage reduction in the salaries of all state employees receiving more than £125 per annum. Immediately the entire civil service, including the state railway employees, rose in revolt and a strike was threatened. The assembly became alarmed at the threatening attitude of the "public servants," and a large number of members, who, under ordinary circumstances, could be counted upon to support the ministry, aligned themselves with the Labor party, and voted against the bill. Premier Irvine determined to make a fight on his measure, and the assembly was dissolved on September 9. The elections that followed the

premier's appeal to the country resulted in a striking vindication of his policy, for although the Labor party gained two members, the ministers were all returned, and found themselves backed by a majority of 36. With the meeting of the new parliament the reform measure was pushed through both houses, in spite of the strenuous opposition, and Premier Irvine then turned his attention to punishing the "civil servants." With this end in view he brought in a bill that practically disfranchised the entire body, although allowing them separate representation on a limited scale. He declared in introducing the measure that he would resign if defeated on this point, as no government could go on if exposed to a continuous pressure for increase of salaries. On December 10, 1902, the bill passed the assembly by 11 majority, thus practically assuring its enactment, since the council is a strong ministerial body.

Social and Industrial Conditions.—The drought, which has prevailed for several years, was felt in 1902 more severely in Victoria than in any other state of the Commonwealth. The mines were being closed, live-stock dying or being killed off, crops drying up, and the cities swarming with unemployed laborers from the country districts. Lack of business in some parts of the country has resulted in the temporary discontinuance of several railway lines. Immigration has entirely stopped and emigration, especially to South Africa, has set in to an alarming extent. Interstate trade and commerce are both falling off. Radical methods have been adopted for the conservation of water for stock and domestic purposes, and for united action on the part of Victoria, New South Wales, and South Australia for utilizing the waters of the Murray River in order to provide adequate irrigation for the northern districts of Victoria.

VIELE, Egbert Ludovickus, a brigadier-general of volunteers in the Union army, died April 22, 1902, in New York. He was born June 17, 1825, at Waterford, N. Y., graduated at West Point in 1845, served in the Mexican war and in Indian campaigns, and was commissioned first lieutenant in 1850. He retired from the army in 1853 and took up his residence in New York City, where he became a civil engineer. He re-entered the army at the outbreak of the Civil War, and in 1861 was commissioned brigadier-general of volunteers. He acted as second in command in the Port Royal expedition, and captured Fort Pulaski and Norfolk, where he was military governor for eighteen months. He was then put in charge of the drafting of troops in the northern part of Ohio. In 1863 he retired from the army and again took up civil engineering. He was elected to Congress as a Democrat in 1885, served later on the board of visitors to West Point, was instrumental in securing the legislation for the Harlem ship canal, and was the originator of many improvements in New York City. In 1896 he spoke on municipal administration before the committee of the British House of Lords at the invitation of that body, and at The Hague Congress of History in 1898 he delivered the closing address. He was vice-president of the American Geographical Society, president of the Aztec Club, and a trustee of the Holland Society. His *Handbook for Active Service* was used extensively during the Civil War.

VIRCHOW, Rudolf, a German scientist, founder of the science of pathology, died in Berlin, September 5, 1902. He was born in Pomerania, October 13, 1821, the son of a shopkeeper and farmer, and after receiving a medical education at the University of Berlin, was appointed in 1847 to the staff of the Charité Hospital. He soon became known as a brilliant investigator in physiology, and with Reinhart in 1848 founded the *Archives für pathologische Anatomie und Physiologie* in which were published the results of his earlier experiments and investigations. His scientific attainments were also recognized by an appointment as lecturer at the university, but his position and all other government favor he lost by his espousal and advocacy of Liberal political ideas and sympathy with the uprising of 1848. Welcomed, however, for his scientific attainments at the University of Würzburg, he there founded a pathological laboratory which soon achieved an international reputation among students of medicine. In 1856 he was recalled to Berlin, and two years lated published his monumental work on *Die Cellularpathologie.* This was in part a compilation of papers already published in the *Archives* mentioned above, but also contained a full and complete statement of his theory. It is interesting to note that this work appeared about the same time as Darwin's *Origin of Species,* and these volumes immediately placed their writers in the front rank of their respective departments of biology. Virchow's theory started with the proposition that the cells of the animal body propagate themselves and that disease is the mechanical or chemical change produced in the cells by outside agencies. So long as the general equilibrium of the organism is not disturbed, the activities of the cell are physiological or normal, but when this is unbalanced the changes are pathological and disease results. Virchow's system was developed with great care from the basic idea *Omnis cellula e cellula,* and by elaborate investigation he demonstrated the truth of his conclusions and amplified the theory. He insisted that specific

stimuli produce specific results, and was opposed by some bacteriologists; but modern bacteriology has been brought into harmony with Virchow's pathological doctrines, and it is now realized that this science rests directly on the fundamental idea of the mechanical and chemical reaction to foreign stimuli on the part of the cells in the animal body. Through a long and useful career of university teaching and investigation, Virchow developed his theories and contributed extensively to the literature of pathology.

He was also a leader in other branches of science and is considered the founder of the modern German school of anthropology. Here he devoted himself to all the important branches of this science, including physical measurements, racial differences, ethnology, and archæology. He was instrumental in the formation of the Berlin Anthropological Society and of the *Berliner Gesellschaft für Anthropologie, Ethnologie, und Geschichten,* as well as in the establishment of the *Archiv für Anthropologie.* Naturally his views on anthropology were influenced by his pathological work, and much of the investigation put forward by zealous anthropologists failed to meet his critical view. His own researches were as numerous as they were varied. Such investigations as the peopling of the Philippines, the physical anthropology of the Germans, the American crania, etc., are typical of his versatility in this field.

As a statesman Professor Virchow was equally well known throughout Germany. He was an active Liberal, and was the leader of the party in the Prussian chamber, of which he was elected a member in 1862. As a member of the Reichstag from 1880 to 1893, he was ever consistent in asserting his Liberal ideas, and on one occasion he was challenged by Bismarck, but the duel never occurred. In 1887 he was deprived of the rectorship of the University of Berlin. A city councilor for forty-two years, he was active in everything pertaining to the physical and intellectual betterment of the city. Virchow has been called by the *Lancet* (London), "the father of rational pathology and the first initiator of a philosophic system of medicine." Among his many publications are: *Handbuch der speciellen Pathologie und Therapie* (3 vols., 1854-62); *Vorlesungen über Pathologie* (4 vols., 1862-67); *Ueber den Hungertyphus* (1868); and of a miscellaneous character, *Goethe als Naturforscher* (1861); *Ueber Pfahbauten und Hünengräber* (1866); and *Die altnordischer Schädel zu Kopenhagen* (1871). The full title of his chief work is *Die Cellularpathologie in ihrer Begründung auf physiologische und pathologische Gewebelehre.*

VIRGINIA, a southern Atlantic State of the United States. has an area of 42,450 square miles. The capital is Richmond. The population in 1900 was 1,854,184, while in June, 1902, as estimated by the government actuary, it was 1,896,000. The populations of the largest cities in 1900 were: Richmond, 85,030; Norfolk, 46,624; Petersburg, 21,810; Roanoke, 21,495.

Finance.—The balance in the treasury on September 30, 1902, was $1,029,800.72, and in addition to this, the United States direct tax fund had to its credit $1,162.74. The total receipts for the fiscal year ending September 30, 1902, were $3,795,093.42. The balance remaining from the previous year was $854,490.92. The disbursements for the fiscal year were $3,910,191.62, leaving a balance on September 30, of $739,392.72. The total debt at the end of the fiscal year was $27,046,475.53, of which $26,837,472.83 was funded. During the year the debt was reduced by $12,116.67.

Agriculture, etc.—According to the *Crop Reporter,* the principal farm crops of Virginia for 1902 were: Corn, 1,879,348 acres, 41,345,656 bushels, $21,499,741; winter wheat, 637,806 acres, 3,635,495 bushels, $2,872,040; oats, 222,074 acres, 3,886,295 bushels, $1,632,244; potatoes, 50,531 acres, 3,789,825 bushels, $2,198,098; hay, 472,913 acres, 501,288 tons, $6,807,491; tobacco, 182,359 acres, 136,769,250 pounds, $12,309,232. The coal mines along the western border of the State produced, in 1901, 2,725,873 short tons having a value at the mines of $2,353,989. The 1902 output was below the normal, owing to the strike of the miners during the summer months. The production of pig iron increased from 217,819 tons in 1901, to 263,233 tons in 1902.

New Constitution.—The new constitution adopted after many months' debate by the constitutional convention which met in July, 1901, was proclaimed by the convention on May 29, 1902, and on June 29 Governor Montague issued a proclamation calling on the people to support the new instrument. The most important changes are those regarding the franchise, though many other changes are included, making the organic law more applicable to existing conditions. The old constitution gave the elective franchise to all citizens of twenty-one years or over who had resided in the State a year, and in the county, city, or town wherein they voted, for three months. The new constitution provides an elaborate elective schedule calculated to insure a vote to every white person and also to such other persons as shall show themselves possessed of the proper qualifications for citizenship. It provides for a general registration of all voters on or before October 15, 1902, and also on or before October 15, 1903. At such registrations males may register if twenty-one years of age and a resident of the State two years, of the county, city, or town one year,

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and of the voting precinct thirty days; provided, however, that any such person (1) has served in time of war under the United States or the Confederate States, or under any State; or (2) is the son of such person; or (3) has paid in the preceding year at least one dollar in State taxes; or (4) is able to read any section of the constitution, or, if unable to read it, can understand and give a reasonable explanation of it. Registration officers were appointed by the convention from whose decisions appeal lay to the county court and from thence to the Supreme Court of Appeals; but all persons registered before January, 1904, are not to be required ever to register again. Persons registering after that date shall be required, if physically able, to make out in their own handwriting an application blank and must have paid an annual poll tax of $1.50 for the three years preceding. Those also who register after January, 1904, shall, unless physically unable, themselves prepare their ballot, which is to be without any distinguishing mark or symbol, and to contain the names of the candidates and of the offices to be filled "in clear print and in due and orderly succession"; those who register before January, 1904, may be aided in the preparation of their ballots. For local elections not involving the election of members of the general assembly, the general assembly is authorized to prescribe a property qualification for voters not exceeding $250. The assembly may also in its discretion "make such exemptions from the operation of said property qualification as shall not be in conflict with the Constitution of the United States." From these provisions it would apear that the convention had found itself able, without adopting all the rigor of the so-called "grandfather" clause of some of the other Southern States, to insure that all white citizens shall be duly enrolled, and thereafter so many negroes as may be deemed advisable; and that, furthermore, local elections shall not be disturbed by any undue preponderance of the negro vote which might possibly occur from advancing negro education.

Stringent provisions were made by the convention to check indiscriminate special legislation and to insure that no spoils bills be made law. The old constitution provided merely that a bill should not become law "until it had been read on three different days in the house in which it originated." The new constitution provides that all bills shall be referred to committees in each house and reported back; that they shall be read on three different days in each house, and that on their final passage a yea and nay recorded vote shall be taken. It is further provided that all amendments shall also be subject to a recorded vote, and that appropriation and tax bills and bills creating or continuing an indebtedness shall not be passed except upon an affirmative vote of a majority of all the members elected to each house. No law other than a general appropriation act is to take effect within ninety days of its passage unless by a four-fifths vote of each house. Special legislation is forbidden wherever a general act is applicable, and special acts dealing with many subjects are specifically prohibited. These subjects include such important matters as punishment for crime; the assessment or collection of taxes; the granting of pensions; the conduct of elections; the salaries of officials; the creating of private corporations and regulating labor, trade, mining, or manufacturing. A standing committee is to be created on all special, private, and local bills, and this committee must report upon all such bills before they can be referred to the special committees dealing with their subjects. The governor is given power to veto particular items of appropriation bills and to return bills with recommendations for amendment. A standing committee of five, two from the senate and three from the house, is to be appointed to examine annually or oftener the accounts of the first auditor, the state treasurer, and the secretary of the commonwealth.

The mayors of cities are given the same power to veto items of appropriation bills as is given to the governor, and as in the general assembly no bill appropriating or borrowing money or imposing taxes can pass the council (whether one or two chambered) without an affirmative vote of all the members elected thereto. No franchise laws or concessions of any public property can be granted for a longer period than thirty years, or unless assented to by a three-fourths affirmative vote of the council. Cities and towns are not allowed to issue bonds to a greater amount than 18 per cent. of the assessed value of the real estate taxed; but bonds issued for a water supply or other specific revenue-producing public utility are not to be included in computing the limit of the city's indebtedness, provided that within five years a revenue is returned from the bonds sufficient to pay the interest on them and provide for a sinking fund.

Conventions and Platforms.—The Democratic State Convention was held at Norfolk, August 14, 1902. The platform contained planks protesting against trusts and charging the Republican party with failure to enforce the laws now existing against commercial combinations. The Democratic State administration was commended; and the party pledged itself to improve the public schools and to develop further the fish and oyster industries of the State. The convention declared in

favor of a State law modifying the "fellow servant" doctrine so as to put responsibility for injuries to their employees upon the transportation companies.

The Republican State convention was held at Roanoke, August 22, 1902. The platform announced the opposition of the party in Virginia to criminal trusts and illegal combinations of capital. It was pointed out, however, that there was no feeling of antagonism against combinations of capital for legitimate purposes. In this connection, the leaders took occasion to point out that, according to their view, the Democratic party of the State, during fifteen years of power, had failed to enact any law or take any steps whatever to control, prevent, or punish any such trusts or illegal combinations of capital. Regarding local issues, the platform protested against discrimination between the white and colored races. It was declared that the suffrage provisions of the State constitution were satisfactory, and would remain so provided proper steps were taken to secure for the voters a free ballot and a fair count.

State Officers.—For 1903, elected for the four-year term ending February, 1906: Governor, A. J. Montague; lieutenant-governor, J. E. Willard; secretary of commonwealth, D. O. Eggleston; first auditor, Morton Marye; second auditor, John G. Dew; treasurer, A. W. Harman, Jr.; superintendent of free schools, J. W. Southall; attorney-general, W. A. Anderson—all Democrats.

Supreme Court of Appeals, in 1902 and 1903: President, James Keith; associate justices, Richard H. Cardwell, John A. Buchanan, George M. Harrison, and Stafford G. Whittle—all Democrats.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

VIRGIN ISLANDS. See LEEWARD ISLANDS.

VITAL STATISTICS. The death rate for the great capitals of Europe for 1900 (the last accessible figures) was as follows: London, 18.8 per 1000; Berlin, 18.7; Paris, 19.4; Vienna, 20.42; Moscow (approximately), 30.94. The large American cities show a death rate per 1000 as follows: New York, 19.95; Philadelphia, 18.26; Boston, 19.06; Chicago, 14.68; Montreal, 25.46. New York City had a death rate of 22.02 in 1901. There were 33,485 marriages, 80,735 births, and 70,808 deaths. Of the deaths, 8,295 came from the morgue, 3219 of which were children under five years of age, 3857 were due to accident, 701 suicide, 105 to homicide, and 1273 to sunstroke. Pneumonia killed 9128, tuberculosis 9396, and typhoid fever 729. Recent statistics show a marked decline in the English birthrate. Since 1881 the percentage of married women under forty-five having children has decreased from 27.4 to 20.06. This is most noticeable in the fashionable quarters of London, the statistics for the slums, Stepney, Shadwell, and Bethnal Green having remained stationary. Throughout the rest of England outside of London, the birthrate has fallen since 1881 from 30.3 per cent. to 25.8 per cent.

VIVEKANANDA. See SWAMI VIVEKANANDA.

VIVISECTION. During 1902 the anti-vivisectionists continued their crusade against all experiments upon living animals. It is admitted by the experimentalists, as well as their opponents, that in many cases vivisection is abhorrent, but the question nevertheless presents itself, Is humanity satisfied with the present attainments of medicine and surgery, or are surgeons and physicians expected to add to the total of scientific knowledge? Dr. E. Stuver, of Fort Collins, Colo., published during 1902 an article in which are tabulated some of the beneficent results from scientific experiments upon living animals, after years of disaster following empiric methods. Among these results are: the demonstration of the manner in which the blood nourishes the tissues; how the chyle is carried into the blood; the process of intestinal digestion; the difference between the motor and sensory functions of the spinal nerves; the action of the vagus and that of the cardiac sympathetic nerves from the thoracic spinal cord upon the heart; the formation of glycogen in the liver; the action of the vaso-motor nerves; localization of intra-cranial injuries or diseases; and the antiseptic treatment of wounds.

VOLCANOES. The year 1902 was one of extraordinary volcanic activity. The terrible disasters that befell St. Pierre and Georgetown were only incidents in a long series of disturbances—closely related in time if not in cause—which affected a vast area of the earth's surface. These disturbances first assumed a pronounced form with the earthquake of April 18, when a large part of southern Mexico and Central America was severely shaken and several towns in Guatemala suffered complete ruin. Shortly after this earthquake Mont Pelée and La Soufrière began to eject clouds of steam; the activity increased in violence until the fearful outbursts of May 7 and 8, following which there were periods of quiescence broken at short intervals by violent eruptions. On May 12 Mont Colima, near Guadalajara, Mexico, was unusually active, and on May 15 the volcano of Soconusco (Mexico) broke its long silence. Then followed the eruptions of Tocana (Guatemala) on June 8,

Piehincha (Ecuador) on June 21 and Santa Maria (Guatemala) on October 24—the last named causing widespread devastation; while without the localized area of disturbance comprising the West Indies and the Cordilleran region there were the eruptions of Mont Redoubt (Alaska) on May 9, Susygan (Caucasia) on June 4, Vesuvius on September 6, Stromboli on September 9, and Mangi Api (Samoa) on November 2. Full details as to many of these disturbances are not yet available and no accurate estimate of the devastation involved can be made. The year's record with three such cataclysms as those of Mont Pelée, La Soufrière, and Santa Maria occurring within the space of six months is unique in history.

The numerous contributions to current literature, both popular and scientific, witness the unusual interest that was taken in the study of volcanic phenomena. The scene of the West Indian eruptions was visited by a number of well-known scientists, many of them acting as representatives of American and British societies, and the disasters were described in great detail upon the basis of their investigations. A review of the literature fails to show, however, that any material advance was made towards confirming the existing theories of volcanism, at least so far as relates to origin, or that any new principles of importance were discovered. In fact one of the most obvious deductions from a study of the year's contributions is the rudimentary state of our knowledge concerning the ultimate cause and mechanism of volcanoes. This, of course, is due to the extreme difficulties surrounding the investigation of such a subject, which is likely to remain one of the mysteries of science for years to come. Yet, as has been pointed out by Professor Milne and others, there are several more or less related problems—the slow movements of the earth's crust, earthquakes, magnetic changes, and escape of heat from the earth's interior—concerning which much might be learned that would be valuable not only in extending our knowledge of the genesis of volcanic activity, but in enabling us to forecast its manifestations. Sir Charles Lyell has stated in connection with the eruptions of Vesuvius that the local upheavals near the Bay of Naples appear to be synchronous with volcanic outbursts, while periods of subsidence are marked by quiescence. The distribution of volcanoes along the great ridges or folds of the earth's crust, where earthquakes most frequently originate, is indicative of a close relation between the two classes of phenomena, and consequently it would be desirable to obtain records as to the location, character, and propagation of seismic disturbances for long periods and upon a broader scale than has hitherto been attempted. Another subject that might be investigated with valuable results is the possible relation between volcanic activity and changes in magnetic elements. The concurrence of such changes with the outbreak of Mont Pelée on May 8 was noted at magnetic stations in the United States, Hawaiian Islands, and Europe.

The synchronism of the eruptions in the West Indies and in the adjacent portions of the American continents suggests that some extraordinary and far-reaching disturbance was in progress, which acted as a proximate cause. In this case there is no good reason for believing that the volcanic forces have yet been exhausted, although periods of inactivity may intervene. See GUATEMALA, MARTINIQUE, and ST. VINCENT.

VOLUNTEERS OF AMERICA, an undenominational organization, incorporated in 1896, that conducts religious, philanthropic, and economic work. Its activities are administered under a military system, including 6 regiments, 14 companies, and nearly 100 self-supporting posts, besides outposts, which raised in their own support during the past year $86,820. Nearly 4,000,000 persons attended the various meetings of the Volunteers, and their officers visited 30,522 families. The homes for destitute men and for workingmen—in Chicago, Pueblo, Joliet, Kansas City, New York City, Brooklyn, Lowell, Worcester, Lynn, Auburn, Toledo, Erie, Philadelphia, and other cities—lodged 252,760 men, and in the restaurants 344,450 persons were fed; the Homes of Mercy in Newark, N. J., and Boston, Mass., provided 2760 beds for young women and permanently cared for 385—the homes for unprotected and neglected children received 426 children, and special efforts are being made to establish another institution of this character; the prison work, carried on in 16 State prisons with 14,000 inmates, reached by correspondence some 22,000 men, and there are Hope Halls in Chicago and Flushing, the latter owned by the Volunteers, which accommodate, respectively, 60 and 80 men; through the tenement work, 1140 families in New York and vicinity alone have been visited and aided. The *Volunteer Gazette* is published weekly at the headquarters in Cooper Square, New York City. President and General, Ballington Booth.

WARE, EUGENE FITCH, a poet and lawyer, was appointed commissioner of pensions by President Roosevelt on April 11, 1902, to succeed Henry Clay Evans (*q.v.*). Mr. Ware was born at Hartford, Conn., May 29, 1841, and was educated in the public schools of Burlington, Iowa. He served during the Civil War in the First Iowa Infantry, and the Seventh Iowa Cavalry, finally becoming captain in the

latter, and also in the Indian wars, where he was seriously wounded. After leaving the army, he moved to Fort Scott, Kan., and in 1871 was admitted to the bar. He was elected to the State senate, and was twice a delegate to the Republican national convention. He was also a candidate for the United States House of Representatives, but was defeated. Mr. Ware is best known by his pseudonym of "Ironquill," under which name he has written many poems of a patriotic or humorous nature. In late years he has lived in Topeka, Kan.

WARREN, George William, an American organist and professor of music, died in New York City, on March 16, 1902. Born September 17, 1828, at Racine, Wis., where he studied music in Racine College, he removed to Albany, N. Y., and for a time was there a member of a hardware firm. After further musical study he was organist at Albany successively of St. Peter's and St. Paul's. From 1860 to 1870 he was organist of the Church of the Holy Trinity in Brooklyn, and from 1870 until his retirement as organist emeritus of the parish in 1900, was organist of St. Thomas's Church in New York. He also held appointment as professor of music in Columbia University. His compositions include sacred music for organ, and various piano pieces.

WASHINGTON, a Pacific coast State of the United States, has an area of 69,180 square miles. The capital is Olympia. Washington was organized as a Territory March 2, 1853, and was admitted to statehood November 11, 1889. The population in 1900 was 518,103, and in June, 1902, as estimated by the government actuary, 551,000. The populations of the three largest cities in 1900 were: Seattle, 80,671; Tacoma, 37,714; Spokane, 36,848.

Finance.—There was on hand in the treasury of the State of Washington at the beginning of the biennial term ending September 30, 1902, $426,001.39. The total receipts from all sources during the two years were $7,149,381.44, and the disbursements $6,663,308.89, leaving a balance on September 30, 1902, of $912,073.94. Of the total receipts $2,687,328.87 were turned into the general fund as applicable to the ordinary governmental expenses, and $2,434,054.63 were turned into the current school fund. The main items of both these funds were derived from a general State property tax. The total indebtedness of the State on September 30, 1902, was $1,344,739.94, of which $1,225,000 represented bonds. During the biennial period the debt was reduced $131,222.34.

Agriculture.—The principal farm crops of Washington for 1902, according to the *Crop Reporter*, were: Winter wheat, 308,315 acres, 7,923,696 bushels, $5,150,402; spring wheat, 757,139 acres, 15,748,491 bushels, $10,236,519; oats 154,006 acres, 7,115,077 bushels, $3,486,388; barley, 140,075 acres, 6,121,278 bushels, $2,815,788; potatoes, 31,288 acres, 4,225,168 bushels, $1,616,964; hay, 322,864 acres, 739,359 tons, $6,602,476. Statistics of farm animals in the State, January 1, 1903, were as follows: 216,988 horses, value $13,187,130; 2251 mules, $156,939; 141,701 milch cows, $5,462,574; 309,909 other cattle, $6,893,804; 1,146,583 sheep, $3,330,708; and 181,326 swine, $1,505,006. The total product of the fisheries in 1902 was $6,731,870—not quite equal to the 1901 output. The salmon catch was valued at $3,889,185, of which 382,704 cases were packed on the Columbia River, and 663,582 cases on Puget Sound. The oyster catch was estimated at $296,750. The fish commissioner reported the capital invested in the fisheries of the State in 1902 amounted to $6,819,218. There were 10,695 employees earning $2,501,650. The value of coal output at the mines for 1902 was $5,300,854. Lumber shipments during the first eleven months of 1902 amounted to 479,715,877 feet, as compared with 406,715,362 feet shipped during the corresponding period in 1901. Flour trade with the Orient developed rapidly. During July-December, 1902, 1,102,311 barrels were shipped to Asiatic ports.

Conventions and Platforms.—The Republican State convention was held at Tacoma on September 10. The platform indorsed the President in the following words: "The Republicans of the State of Washington are in sympathy with you in your brave stand for the common people of the United States, and pledge to Theodore Roosevelt their support and votes for 1904." The governor of the State was also indorsed, and the passage of laws requiring the adoption of safety appliances in mills and factories, looking to the improvement of State roads, and the enactment of an eight-hour law for State work was urged.

The Democratic State convention was held at Tacoma on September 17. The convention indorsed the Kansas City platform and opposed imperialism and colonialism, government by injunction, trusts, and "trust-fostering tariffs." It condemned "special privileges given for grazing sheep on government forest reserves," demanded complete exclusion from all American territory of all Chinese, and denounced the Republican majority in Congress for "passing the present weak and inadequate law."

Elections.—At the election held November 4, 1902, the Republican candidate for justice of the Supreme Court was elected, the vote being Hadley (Rep.), 59,017;

Reavis (Dem.), 32,544, giving Hadley a plurality of 26,473. The State legislature for 1903 will consist of 33 Republicans and 9 Democrats in the senate, and 81 Republicans and 13 Democrats in the house.

State Officers.—For 1902 and 1903: Governor, Henry G. McBride (formerly lieutenant-governor, succeeded to office upon the death of Gov. John R. Rogers, term expires January, 1905); secretary of state, S. H. Nichols; treasurer, C. W. Maynard; auditor, J. D. Atkinson; attorney-general, W. B. Stratton; superintendent of education, W. B. Bryan; commissioner of public lands, S. A. Calvert—all Republicans.

Supreme Court.—Chief justice, J. B. Reavis; associate justices, R. O. Dunbar, T. J. Anders, Mark A. Fullerton, Wallace Mount, H. E. Hadley and W. H. White—all Republicans. The last two were appointed October 7, 1902, to fill out unexpired terms.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

WATER GAS. See GAS, ILLUMINATING AND FUEL.

WATER PURIFICATION. The year 1902 saw work begun at Philadelphia on the largest single water filtration plant yet attempted. It will have a capacity of 200,000,000 gallons a day, and if certain new methods being installed at a smaller plant in Philadelphia prove as successful as is expected, some 40,000,000 gallons a day may be added to the capacity mentioned. This immense plant is located at Torresdale, Pa., near the Delaware River, water from which it is designed to purity. A long tunnel deep down in the rock will convey the filtered water to the city. The filters are to be of the slow sand filtration type, like those which have proved so successful at London, Berlin and many other European cities, and at Albany, N. Y.; Lawrence, Mass., and elsewhere in this country. The filters at Philadelphia are to have concrete floors, columns, side walls and roofs. A small plant of similar construction was put in use at Philadelphia late in 1902, and two others, besides the one at Torresdale, are also being built. Altogether the city will have a daily filtering capacity of about 300,000,000 gallons. Some water will be taken from the Schuylkill as well as from the Delaware River. The former contains much coal dust at times, and both carry more or less other matter in suspension. To relieve the filter beds from clogging, some of this suspended matter will be removed by sedimentation. A preliminary, or roughing, filter is to be built at one of the smaller plants to still further relieve the filter beds. This preliminary plant will be of a new type and will operate at a relatively high rate.

A contract for a large slow sand filtration plant was let at Providence, R. I., during 1902, and plans for similar filters for Washington, D. C., were completed toward the end of the year; and bids for construction, to be opened only in 1903, were invited. A large mechanical filtration plant was completed in 1902, at Little Falls, N. J. Water from it will be supplied to Paterson, Passaic and other New Jersey towns. These works were built by the East Jersey Water Company, with Mr. Waldo F. Smith, of Paterson, as chief engineer, and Mr. George W. Fuller, of New York City, as consulting engineer. They differ from previous mechanical filters in that the filter tanks are rectangular, instead of round, and are made of concrete, instead of steel or wood. Air will be used to assist the washing of the filtering material. Another notable mechanical filter plant under construction in 1902 was the one at Louisville, Ky. It is in some respects similar to the one at Little Falls, but the filter tanks are much larger, and the filtering material will be stirred up, when washed, by an apparatus lowered from above, and mounted on an overhead carriage.

Of the 1524 cities and towns which by the United States census of 1900 had populations of 3000 and upwards, there were, early in 1902, 1475 that reported water-works, and of the latter 311 stated that some means were employed to improve the character of their water supplies. Omitting 68 places that merely reported the water "filtered," there still remain 243, out of 1475 water-works that report purification. These plants are classified as follows: Mechanical filters, 141; slow sand filters, 21; sedimentation basins, 53; filter galleries, 14; filter cribs, 11; softening plants, 2; aerating plants, 5; total, after deducting duplicates, 243. This summary takes no account of the relative efficiency of the various plants, individually or by classes. The sedimentation basins are chiefly for classification, and some of the filter galleries and filter cribs were built to develop underground supplies, just as a well might be sunk for that purpose, rather than to improve an undesirable water. Many of the mechanical filters were put in to clarify water, and only incidentally, if at all, with a view of removing dangerous bacteria. Most of the slow sand filters are in the New England and Middle States, and many of the mechanical filter plants are located on the turbid streams of the South and central West. Further particulars are given in *The Municipal Year Book* (New York, 1902).

WELLESLEY COLLEGE, for the higher education of women, at Wellesley, Mass., founded 1875, had an attendance of 884 during the academic year 1901-02, and a faculty of 86. The gross income was $289,669, and gifts to the university of $13,000 were received. The library numbered 54,066 volumes. In 1902 Mr. J. D. Rockefeller promised to give the college $150,000 for a central heating plant and other purposes, provided an equal amount should be secured by the institution from other sources for general endowment.

WELLS COLLEGE, an undenominational college for women at Aurora, N. Y., had in 1902 a faculty of 22 and 115 students. Its library contained 10,664 volumes. Gifts to the amount of $93,000 were received for the erection of three new buildings; a gymnasium, a recitation and administration hall, and a hall for physics and chemistry, to be built during 1903. The number of applicants for admission was largely increased, and the college appears to be entering on a new career of prosperity.

WENCKEBACH, CARLA, professor of the German language and literature at Wellesley College, and author of many widely-used school and college text-books, died December 29, 1902. She was born in Hildesheim, Germany, February 14, 1853, and after study at the Hanover Normal School and at the universities of Zurich and Leipzig, had a varied experience as teacher in England, Belgium, Russia, and in New York City. In 1883 she was made instructor in German at Wellesley College, and two years later became professor.

WESLEYAN METHODIST CONNECTION OF AMERICA, organized in 1843, now has 516 churches, with about 700 ministers and a membership approximating 17,000. It controls two educational institutions, including Houghton Seminary at Houghton, N. Y., and is represented by an official organ, the *Wesleyan Methodist*, published in Syracuse, N. Y. During the year 1902 appeared a history of the church by the Rev. A. T. Jennings. The next general conference of the denomination will be held in the fall of 1903.

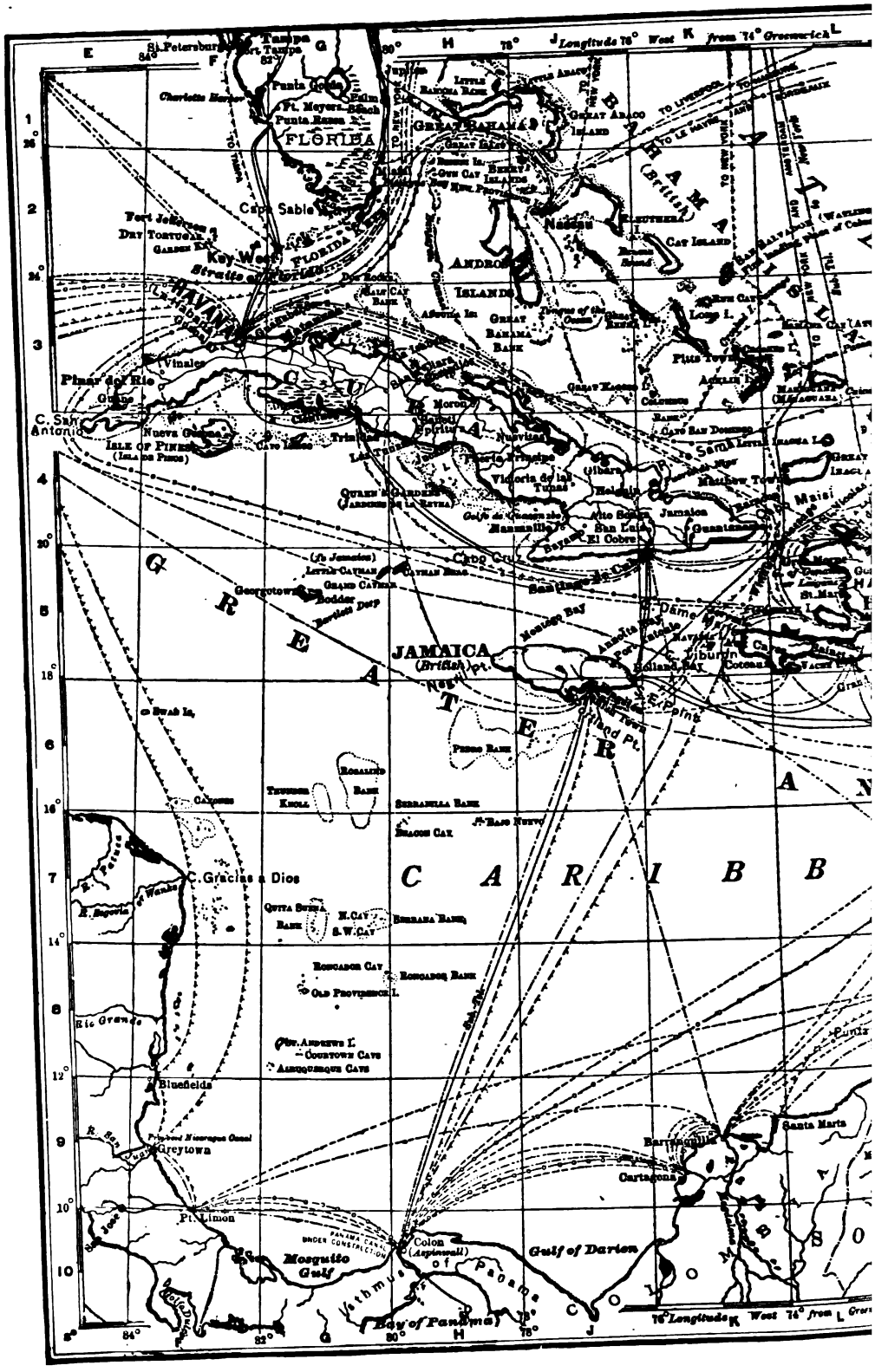
WESLEYAN UNIVERSITY, a Methodist Episcopal institution for both sexes, Middletown, Conn., founded 1831, had in 1902 325 students and a faculty of 35 members. The library had 63,000 volumes. The gross income available for current expenses was $116,535, and in addition gifts were received amounting to $58,350. Work was begun on the Wilbur Fisk Recitation Hall to cost about $120,000, raised by subscription, and on the Scott Physical Laboratory, the gift of Charles Scott and Charles Scott, Jr., in memory of John B. Scott, of the class of 1881, who was killed in the Spanish War. Preparations were begun for the celebration of the two hundredth anniversary of the birth of John Wesley, in whose honor the college was named. The celebration will occur in connection with the commencement in 1903.

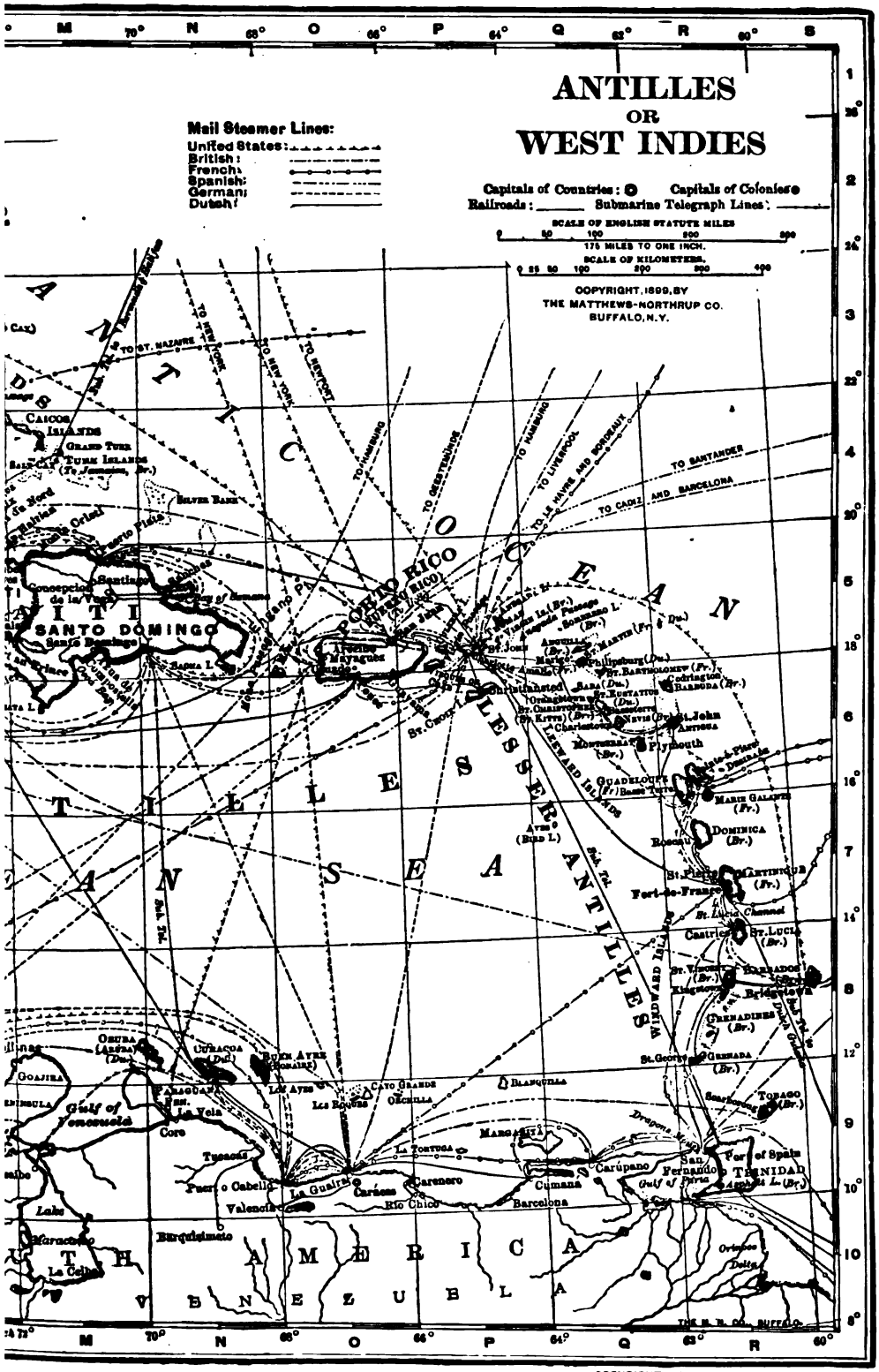
WESTERN AUSTRALIA, the largest state in the Commonwealth of Australia, has an area of 975,920 square miles, and a population, according to the census of 1901, of 182,553, as compared with 49,782 in 1891, an increase of over 264 per cent. On June 30, 1902, the population was stated at 208,322. Perth, the capital and largest town, has 40,000 inhabitants. Primary education is compulsory and free. The expenditure of the state on education in 1902 was £102,359.

Government and Finance.—The executive power is exercised by a governor appointed by the crown and assisted by a responsible ministry. The legislative power is vested in a legislative council of 30, elected for six years on a property qualification basis, and a legislative assembly of 50, elected for three years by universal adult suffrage (including women). The state revenue increased from £3,708,034 in 1901 to £3,688,049 in 1902, and the expenditure from £3,165,244 to £3,490,026. The surplus, however, is said to be due to the fact that the state is still allowed to collect a certain portion of her border customs. The public debt increased during the year from £12,709,430 to £14,942,310.

Industries, Commerce, etc.—Western Australia is the chief gold producing state in the Commonwealth. The output in 1901 was 1,879,390 ounces—the largest on record—but the production for 1902, which reached 1,790,490 ounces in the first ten months, gave promise of being considerably in excess of even that amount. Agriculture is backward, owing to lack of sufficient laborers and transportation. Wheat and hay are at present the only crops of any importance. Forest and live-stock products are of growing importance, and, in addition to gold, there are mined silver, tin, coal, lead, and copper. Commerce is in a flourishing condition, the imports having increased from £5,962,178 in 1901 to £6,454,171 in 1902 and exports from £6,852,054 to £8,515,623. The exports to Great Britain in the latter year amounted to £5,625,459. The exports in order of value are gold, timber, wool, pearls and pearl shell, copper, and sandal wood.

History.—The Hon. George Leake, who became premier of the state in December, 1901, died on June 24, 1902, and a new ministry was formed as follows: Premier and attorney-general, Walter Hartwell James; colonial secretary and minister of education, Walter Kingsmill; minister of mines, Henry Gregory; commissioner


Longitude 78° West from 74° Greenwich
Tampa
St. Petersburg
Port Tampa
Charlotte Harbor
Punta Gorda
Palm Beach
Ft. Meyers
Punta Rassa
FLORIDA
Cape Sable
Fort Jefferson
Dry Tortugas
Garden Key
Key West
FLORIDA
Straits of Florida
Jupiter
Little Bahama Bank
Little Abaco
Great Abaco Island
Great Bahama
Berry Islands
Gun Cay
New Providence
Nassau
Eleuthera
Cat Island
Andros Islands
Great Bahama Bank
Exuma Sound
Long I.
Great Exuma
Pitts Town
Acklin I.
Mayaguana
BAHAMA
(British)
TO LIVERPOOL
TO NEW YORK
San Salvador (Watling)
HAVANA
(La Habana)
Guanabacoa
Matanzas
Cardenas
Vinales
Pinar del Rio
Guane
C. San Antonio
Nueva Gerona
ISLE OF PINES
(Isla de Pinos)
Cayo Largo
Trinidad
Las Tunas
Moron
Sancti Spiritus
Nuevitas
Puerto Principe
Victoria de las Tunas
Gibara
Holguin
Jamaica
Guantanamo
Cape Maisi
Manzanillo
Alto Songo
San Luis
El Cobre
Bayamo
Cabo Cruz
Santiago de Cuba
Gulf of Guacanayabo
Queen's Gardens
(Jardines de la Reina)
Little Inagua I.
Great Inagua
Matthew Town
Santo Domingo
Cayman Islands
Little Cayman
Cayman Brac
Grand Cayman
Georgetown
Bodden
Bartlett Deep
JAMAICA
(British)
Montego Bay
Annotta Bay
Port Antonio
Kingston
Port Royal
Morant Pt.
Portland Pt.
Holland Bay
Cape Dame Marie
Jacmel
Cayes
Pedro Bank
Swan Is.
Caratasca
Thunder Knoll
Rosalind Bank
Serranilla Bank
Bajo Nuevo
Bacon Cay
C. Gracias a Dios
Quita Sueña Bank
N. Cay
S. W. Cay
Serrana Bank
Roncador Cay
Roncador Bank
Old Providence I.
St. Andrews I.
Courtown Cays
Albuquerque Cays
Rio Grande
Bluefields
Proposed Nicaragua Canal
Greytown
R. San Juan
Pt. Limon
San Jose
Mosquito Gulf
Panama Canal under construction
Colon
(Aspinwall)
Isthmus of Panama
Bay of Panama
Gulf of Darien
Barranquilla
Santa Marta
Cartagena
Punta
GREATER ANTILLES
CARIBBEAN
COLOMBIA
E F G H J K L
84° 82° 80° 78° 76° 74°
26° 24° 22° 20° 18° 16° 14° 12° 10° 8°
1 2 3 4 5 6 7 8 9 10


ANTILLES OR WEST INDIES
Mail Steamer Lines:
United States:
British:
French:
Spanish:
German:
Dutch:
Capitals of Countries:
Capitals of Colonies
Railroads:
Submarine Telegraph Lines:
SCALE OF ENGLISH STATUTE MILES
175 MILES TO ONE INCH.
SCALE OF KILOMETERS.
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ATLANTIC OCEAN
CARIBBEAN SEA
LESSER ANTILLES
HAITI
SANTO DOMINGO
Santo Domingo
PORTO RICO (PUERTO RICO) (U.S.)
Mayaguez
San Juan
Caicos Islands
Grand Turk
Turk Islands (To Jamaica, Br.)
Silver Bank
Puerto Plata
Santiago
Concepcion de la Vega
St. Croix
Christiansted
St. John
Anguilla (Br.)
St. Martin (Fr. & Du.)
Philipsburg (Du.)
St. Bartholomew (Fr.)
Saba (Du.)
St. Eustatius (Du.)
St. Christopher (St. Kitts) (Br.)
Nevis (Br.)
Charlestown
Antigua
St. John
Barbuda (Br.)
Codrington
Montserrat (Br.)
Plymouth
Guadeloupe (Fr.)
Basse Terre
Pointe-à-Pitre
Marie Galante (Fr.)
Dominica (Br.)
Roseau
Martinique (Fr.)
St. Pierre
Fort-de-France
St. Lucia Channel
St. Lucia (Br.)
Castries
St. Vincent (Br.)
Kingstown
Barbados
Bridgetown
Grenadines (Br.)
Grenada (Br.)
St. George
Tobago (Br.)
Scarborough
Trinidad (Br.)
Port of Spain
San Fernando
Gulf of Paria
Dragon's Mouth
Aves (Bird I.)
Leeward Islands
Windward Islands
Curacao (Du.)
Oruba (Aruba) (Du.)
Buen Ayre (Bonaire)
Los Roques
Orchilla
Blanquilla
Margarita
La Tortuga
Gulf of Venezuela
Goajira
La Vela
Coro
Tucacas
Puerto Cabello
Valencia
La Guaira
Caracas
Carenero
Rio Chico
Barcelona
Cumana
Carupano
Barquisimeto
Lake Maracaibo
Orinoco Delta
SOUTH AMERICA
VENEZUELA
TO ST. NAZAIRE
TO NEW YORK
TO NEWPORT
TO HAMBURG
TO GEESTEMÜNDE
TO LIVERPOOL
TO LE HAVRE AND BORDEAUX
TO SANTANDER
TO CADIZ AND BARCELONA
M N O P Q R S
70° 68° 66° 64° 62° 60°
26° 24° 22° 20° 18° 16° 14° 12° 10° 8°
THE M. N. CO. BUFFALO

of lands, Adam Jameson; minister of public works and railways, Cornthwaite Hector Rason; colonial treasurer, James Gardiner. The parliament was opened July 17 by Sir Arthur Lawley, who congratulated the members on the exceptionally prosperous condition of the state. The depression that was so evident in other Australian states was scarcely noticeable in Western Australia. There had been little suffering from the drought, 208 miles of irrigation pipes had been laid, and the construction of the system was only fairly begun. Immigration had increased steadily, and activity in the mining districts was greater than ever. In August, 1902, Sir Arthur Lawley was appointed lieutenant-governor of the Transvaal, and was succeeded in Western Australia by Sir Albert Edward Stone.

WESTERN RESERVE UNIVERSITY, Cleveland, O., founded 1884, had in 1902 a faculty of 153 members and a student body of 780 in all departments. The gross income was $258,000. The library contained 48,000 volumes. Gifts to the amount of $245,000 were received during the year. A gift of $100,000 by Mr. Andrew Carnegie was announced for the purpose of founding a school for the training of librarians. The school will be organized as a department of the university on an equality with the other post-graduate departments. The Florence Harkness Memorial Chapel and Haydn Hall were dedicated, the latter chiefly for dormitory purposes. The chapel contains, besides the nave seating about 600, a room for the Biblical library and a lecture room for the department of Biblical literature. The main building of Adelbert College was thoroughly reconstructed at a cost of about $100,000.

WEST INDIES, the name given to the archipelago stretching in a great quarter circle from the mouth of the Orinoco in South America to the Straits of Florida, and inclosing the Caribbean Sea. The area is estimated at more than 90,000 square miles and the population at 5,000,000. The principal products include sugar, fruits, tobacco, cacao, maize, guava and ginger. The year 1902 was an eventful one for the West Indies in more ways than one. It witnessed one of the most stupendous volcanic cataclysms of history in the eruption of Mont Pelée on the island of Martinique (*q.v.*) and the upheaval of the volcano of La Soufrière on the island of St. Vincent (*q.v.*). Politically the year was marked by the entrance of Cuba (*q.v.*) as an independent republic among the states of the world. Of lesser interest were successful revolutions achieved in the republics of Haiti and Santo Domingo (*qq.v.*) on the island of Haiti. The political aspect of the islands is a conglomerate one with the United States, Great Britain, France, and Denmark as territorial possessors therein, in addition to the independent islands of Cuba and Haiti. The West Indies have become important to the United States, now that the construction of an isthmian canal has been determined upon. To guard the entrance to the canal the United States should occupy a vantage ground on the islands. The long delayed acquisition of the Danish West Indies (*q.v.*) may be but a step. In Jamaica and Trinidad in this direction dissatisfaction with British rule will on occasion (as in 1902) express itself in the form of a discussion as to the benefits to be gained by annexation to the United States. In addition to the names for which references are given above, see BAHAMAS; BARBADOS; CURAÇAO; GUADELOUPE; JAMAICA; LEEWARD ISLANDS; PORTO RICO; TRINIDAD; and WINDWARD ISLANDS.

WEST POINT, UNITED STATES MILITARY ACADEMY AT. See MILITARY ACADEMY, UNITED STATES.

WEST VIRGINIA, a central eastern State of the United States, has an area of 24,780 square miles. The capital is Charleston. The population in 1900 was 958,800, and in June, 1902, as estimated by the government actuary, 1,004,000. The largest city in 1900 was Wheeling, with a population of 38,878.

Finance.—The balance in the treasury of the State on October 1, 1901, was $1,108,046.36. The total receipts during the year were $2,292,162.10, and the total disbursements $2,147,160.57, leaving a balance in the treasury on September 30, 1902, of $1,253,047.89. The largest items of revenue during the year were: From the State tax, $563,660.50; from the license tax, $202,475.50; from the license tax on charters, $375,560.46; from the railway tax, $447,694.26, and from the school tax, $391,035.60. The total revenues received were apportioned among the funds as follows: To the State fund, $1,710,765.12; to the general school fund, $493,085.47; and to the school fund, $88,311.51. It was stated by the treasurer that the financial conditions of the State were the best in its history; the new corporation law passed by the legislature of 1901 having largely increased the revenues. West Virginia has no debt.

Agriculture and Industries.—The principal farm crops of West Virginia for 1902, according to the *Crop Reporter*, were: Corn, 774,061 acres, 20,512,616 bushels, $11,076,813; winter wheat, 356,264 acres, 2,743,233 bushels, $2,249,451; oats, 85,614 acres, 2,448,560 bushels, $1,003,910; potatoes, 32,192 acres, 3,090,432 bushels, $1,576,120; hay, 517,644 acres, 579,761 tons, $8,307,975; tobacco, 4676 acres, 2,969,260 pounds, $286,004.

A general strike on June 7, 1902, suddenly reduced the output of the coal mines 80 per cent., and it was late in the autumn before they were again in full operation. Fifty new mines were opened in 1902, making a total of 450 commercial mines. Five different railroads were building spurs in the coal regions during the year. A large coal area was made accessible by making the Monongahela River navigable up to Fairmont. One of the most important transfers of property was the purchase by the Gould interests of the coal fields owned by the Davis Coal and Coke Company and the West Virginia Central and Western Maryland railroads. The coke produced in the year ending June 30, 1902, was 2,249,744 short tons—a product exceeded only by Pennsylvania. The report of the mine inspector for the fiscal year 1902 showed 35,157 men employed at the mines and coke ovens. At the end of the calendar year 1902 several large companies advanced wages 10 per cent. The natural gas produced in 1901 was valued at $3,954,722. In 1902 there was a considerable increase in the use of the gas in glass-making. Railway construction during the year amounted to 92.13 miles.

Political.—The election in 1902 was for representatives to Congress and to the State legislature. Several amendments to the State constitution were also voted upon. One of these changed the office of secretary of state from the appointive to the elective class. A second proposed amendment provided that the salaries of the principal executive officers of the State should be increased. These salaries have heretofore been fixed by the constitution. A third proposed amendment strikes out the constitutional provision for registration and substitutes the words "no citizen shall be denied the right or privilege of voting at an election because his name is not or has not been registered or listed as a qualified voter."

State Officers.—For 1902 and 1903: Governor, A. B. White (elected for 4 years, term ending March, 1905); secretary of state, W. M. O. Dawson; treasurer, Peter Silman; auditor, A. C. Scherr; attorney-general, R. H. Freer; superintendent of schools, T. C. Miller; commissioner of agriculture, J. O. Thompson; commissioner of labor, J. V. Barton—all Republicans.

Supreme Court of Appeals in 1902 and 1903: President, Henry Brannon; associate judges, M. H. Dent, H. C. McWhorter, George Poffenbarger—all Democrats except McWhorter, Republican.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

WHEAT. As stated by the United States Department of Agriculture, the world's wheat crop in 1901 was as follows:

Countries.	Bushels.	Countries.	Bushels.	Countries.	Bushels.
United States	748,460,000	Canada	90,288,000	Japan	20,000,000
Russia	463,071,000	Argentina	74,753,000	Persia	15,200,000
France	304,210,000	Roumania	72,386,000	Belgium	12,920,000
British India	245,751,000	Australasia	56,610,000	Servia	10,000,000
Austria-Hungary	184,216,000	United Kingdom	55,581,000	Mexico	9,000,000
Italy	147,560,000	Turkey	52,000,000	Chile	9,000,000
Spain	108,000,000	Africa	45,400,000	Other countries	28,774,000
Germany	91,817,000	Bulgaria	24,000,000		
		Total			2,873,197,000

This is about 300,000,000 bushels more than were produced in 1900, but 130,000,000 bushels less than in 1898.

The wheat crop in the United States in 1902 was 670,063,000 bushels, valued at $422,224,117, or about 63 cents per bushel. This crop was grown on 46,202,424 acres, the average yield being 14½ bushels per acre. In the principal wheat-growing States the crop was as follows:

	Acreage.	Bushels.	Dollars.		Acreage.	Bushels.	Dollars.
Pennsylvania	1,558,745	24,628,171	17,978,565	Missouri	2,827,463	56,266,494	33,634,567
Maryland	757,090	11,129,923	8,013,041	Kansas	4,395,319	45,827,495	23,205,122
Texas	959,258	8,633,277	6,647,623	Nebraska	2,525,150	52,726,451	23,835,961
Ohio	2,124,759	36,333,379	25,796,699	South Dakota	3,604,347	43,973,033	22,064,269
Michigan	1,056,114	18,693,218	12,898,320	North Dakota	3,954,229	62,872,241	36,465,900
Indiana	2,217,778	35,484,448	24,129,425	Washington	1,065,454	23,671,187	15,386,921
Illinois	1,821,337	32,601,932	19,235,140	California	2,052,679	22,374,201	17,899,361
Minnesota	5,737,583	79,752,404	48,648,966	Oklahoma	1,087,747	12,073,992	7,002,915
Iowa	1,174,891	14,869,245	7,178,085				

The wheat crop of Russia in 1902 is reported to be considerably larger than in 1901.

As reported by F. H. Hitchcock, chief of division of foreign markets, the exports of wheat and wheat flour from the United States during the year ended June 30, 1902, were as follows.

Wheat.			Wheat Flour.		
Countries to Which Exported.	Bushels.	Dollars.	Countries to Which Exported.	Barrels.	Dollars.
United Kingdom	77,544,418	55,399,968	United Kingdom	9,059,722	34,818,702
Germany	19,725,674	14,944,074	Netherlands	1,404,247	5,455,083
Netherlands	16,970,033	12,825,408	Hongkong	1,398,893	4,164,693
Belgium	15,662,238	11,907,651	Germany	703,470	2,773,836
Canada	7,134,094	5,257,808	Brazil	544,145	2,187,352
France	3,324,015	2,491,393	Cuba	589,556	2,135,479
Denmark	2,920,524	2,242,806	British West Indies	546,973	2,049,935
Portuguese Africa	2,846,768	1,736,569	British South Africa	411,158	1,444,460
Portugal	2,336,955	1,468,798	Japan	446,435	1,279,880
British South Africa	1,439,067	1,059,151	Other countries	2,654,604	9,352,554
Other countries	4,952,314	3,541,596			
Total	154,856,102	112,875,222	Total	17,759,203	65,661,974

The imports of wheat were 118,612 bushels (valued at $78,640), of which 102,435 bushels were from Canada and 14,565 bushels from Russia; the imports of wheat flour were 420 barrels (valued at $2610), of which 391 barrels were from Canada.

WHEELOCK, Jerome, an American engineer, the inventor of the "Wheelock engine," died February 26, 1902, at Worcester, Mass. He was born June 20, 1834, in Grafton, Mass. Beginning as a mechanic he afterwards became an engineer, and then engaged in the manufacture of a cylinder packing which he had invented. He also invented the valves which were the main feature of the engine known by his name. The Wheelock engine was awarded the great gold medal of progress by the American Institute, New York, in 1875; the medal and diploma of the Centennial Exhibition in 1876, and the grand prize at the Paris International Exposition of 1878. He made a great success of the manufacture of the engine, which was used all over the world.

WHIPPLE, William Denison, brevet major-general, U. S. A., died April 2, 1902, in New York City. He was born August 2, 1826, at Nelson, N. Y., and graduated at West Point in 1851. Assigned to service on the Indian frontier in 1857, he participated in the Gila expedition against the Apaches, in 1858 in the Navajo expedition, and in 1860 in the defense of Fort Defiance, New Mexico. In the Civil War he was attached to Colonel Hunter's division in the Manassas campaign, was engaged in the battles of Bull Run, Missionary Ridge, Resaca, Kenesaw Mountain, and in the operations about Chattanooga. In 1863 he became brigadier-general of volunteers, and afterwards received the brevet of a major-general in the regular service. During and after the war he served in the adjutant-general's department, and was retired in 1887.

WHITE, Emerson Elbridge, an American educator, died October 21, 1902, at Columbus, Ohio. He was born January 10, 1829, in Mantua, Ohio; graduated at Western Reserve University, was commissioner of common schools of Ohio from 1863 till 1866, president of Purdue University from 1876 till 1883, and in the latter year removed to Cincinnati, where he engaged in literary work and was superintendent of public schools in 1886. His text-books, especially of arithmetic, have been widely used in the United States.

WHITFORD, William Clarke, an American educator, died in Milton, Wis., May 21, 1902. He was born at Edmeston, N. Y., May 5, 1828; graduated from Union College in 1853, and three years later from the Union Theological Seminary. For two years he held the pastorate of a Seventh Day Baptist church in Milton, Wis., and in 1858 became president of Milton College, an office in which he served until his death. From 1867 to 1875 he was a regent of the Wisconsin State normal schools, and from 1878 to 1881 superintendent of public instruction in that State. He published many volumes on religious and educational subjects.

WHITTLE, Francis McNeece, Protestant Episcopal bishop of Virginia, died in Richmond, Va., June 18, 1902. He was born in Mecklenberg County, Va., July 7, 1823, and in 1847 graduated at the Virginia Theological Seminary in Alexandria. After pastoral charges in Kanawha, Va.; Northam, Va.; Berryville, Va., and Louisville, Ky., he was consecrated assistant bishop of Virginia in 1868, and in 1876 succeeded Bishop Johns as bishop. He received in 1873 the degree of LL.D. from William and Mary College.

WILLIAMS COLLEGE, Williamstown, Mass., founded 1793, had in 1902 an attendance of 423, a gain of 30 over 1901, and the faculty numbered 31. The income for the year was $110,130. The promise of a new chapel, to cost $100,000, the gift of Mrs. Thompson, was announced. A new department, of government, was established, to be opened in the spring of 1903. The library contained about 48,000 bound volumes.

WILSON, Joseph Miller, an American engineer and architect, died in Philadelphia, Pa., November 24, 1902. He was born at Phœnixville, Pa., June 20, 1838; graduated in 1858 at the Rensselaer Polytechnic Institute at Troy, N. Y., and in 1860 became identified with the engineering staff of the Pennsylvania Railroad, of which he remained a member until 1886, as an assistant engineer (1860-63), as resident engineer of the middle division (1863-65), and then as a superintendent of bridge construction on the main line. As an architect he designed a large number of railroad stations and miscellaneous structures, the Reading terminal station, the Drexel Institute, and the Drexel Building, in Philadelphia, and aided in the designing of the main building and machinery hall at the Centennial Exposition of 1876. He was consulting engineer in many important enterprises throughout the eastern States, and rendered valuable service as a member of the board of experts which, under the direction of the New York Rapid Transit Commission, investigated the practicability of an underground railroad for New York City. He was a member of many scientific societies and contributed widely to their journals.

WILSON, Woodrow, an American publicist, installed president of Princeton University, October 25, 1902, was born December 28, 1856, in Staunton, Va. He graduated from Princeton in 1879, and studied law during the following year at the University of Virginia. He began the practice of law in Atlanta, Ga., took the degree of doctor of philosophy at Johns Hopkins University in 1885, and in the same year became professor of history and political economy at Bryn Mawr College. In 1888 he accepted a professorship at Wesleyan, and in 1890 returned to Princeton as professor of jurisprudence and politics. His unanimous election to the presidency of the university, on the resignation of Francis L. Patton, was a signal departure from the policy of considering a layman ineligible for the office. He has published: *Congressional Government, A Study in American Politics* (1885); *The State; Elements of Historical and Practical Politics* (1889); *Division and Reunion, 1829-1889* (1893); *An Old Master, and Other Political Essays* (1893); *Mere Literature, and Other Essays* (1893); *George Washington* (1896); *Colonies and Nation, A Short History of the People of the United States* (1901); and *History of the American People,* 5 vols. (1902).

WINDWARD ISLANDS, the most southerly group of the British West Indies, constitute a colony comprised of the islands of Grenada and the Grenadines, St. Lucia, and St. Vincent. Barbados (*q.v.*), a separate colony, and Tobago, attached to Trinidad (*q.v.*) administratively, also belong to the Windward group. The Windward Islands colony proper has a total area of 524 square miles and a population (1901) of 160,881. There is one governor for the colony and a joint court of appeals with Barbados, but no federal organization as in the Leeward group, nor is there a common tariff or treasury. St. George, Grenada, is the seat of government, and the residence of the governor, Sir Robert Baxter Llewelyn. The Grenadines are divided for administrative purposes between Grenada and St. Vincent.

Grenada has an area of 133 square miles, and a population, including some of the Grenadines, of 64,288. The chief town, St. George, has a population of 5000. The finances of the colony are in good condition, the revenue amounting, in 1901-02, to £70,075, and the expenditure to £65,990. The public debt, reduced by £3900 during the year, stands at £123,670. The land is fertile and the forests are rich in valuable timbers. The imports in 1901-02 amounted to £246,567, and the exports to £303,934. The principal articles of export are cacao, the value of which, in 1901, was £265,979; nutmegs (£21,044), spices, sugar and coffee.

St. Lucia, the largest island of the Windward group, has an area of 233 square miles and a population (1901) of 50,237. The chief town is Castries, with a population of 8000. The revenue (1901-02) amounted to £67,365, and the expenditures to £67,486. The debt is £175,780. The imports fell from £403,502 in 1900-01 to £382,652 in 1901-02, and the exports from £229,436 to £188,067. The principal exports were sugar (10,879,800 pounds in 1901), molasses and cacao.

St. Vincent is treated under its own title.

WINNER, Septimus, an American song-writer, died in Philadelphia, Pa., November 23, 1902. He was born in Philadelphia, May 11, 1827, and after studying many instruments began to teach music at the age of twenty. In 1847 he joined the Musical Fund Orchestra as first violinist, remaining a member for ten years, and in 1853 opened a music store in Philadelphia, where, until his death, he was in close touch with that city's musical affairs. Under pseudonyms like "Alice Hawthorne," "Percy Guyer," "Mark Mason," and "Paul Stenton," he composed the words and music of "How Sweet are the Roses" (1850), "What Is Home Without a Mother?" (1854), "Listen to the Mocking Bird" (1855), and other songs and ballads that were sung throughout the United States a generation and a half ago; and his patriotic songs, "Give Us Back Our Old Commander," which caused his imprisonment for criticising the removal of General McClellan from the command of the Army of the

Potomac, and "God Save Our President," written during President Garfield's illness in 1881, had a wide popularity. He was also known for his "Gems of the Opera," and other similar collections which he compiled.

WIRELESS TELEGRAPHY. The progress made in wireless telegraphy during the year 1902 was mainly in the direction of extending its range and improving the apparatus rather than in devising new methods. In nearly every country of the world wireless telegraphy is now in actual commercial or military use on a more or less extensive scale, or is in process of experimentation. Many investigators are at work attempting to improve and perfect the various parts of the apparatus, which is now of a complex nature. The most important event of the year was the actual transmission of messages between the Marconi stations at Glace Bay, Cape Breton, and Poldhu, Cornwall. The first actually complete message was sent on December 21, 1902, from Lord Minto to King Edward, and was followed by numerous others of a congratulatory nature, transmitted in both directions. It will be remembered that in the latter part of 1901 Mr. William Marconi announced that he had sent the signal S from Cornwall to America. The continued improvement in apparatus and methods during 1902 brought about the desired result. Aside from this work Marconi's most notable achievements were on the steamship *Philadelphia*, in March, and on the *Carlo Alberto*, a cruiser of the Italian navy, on which his apparatus had been installed. On the *Philadelphia* Marconi was able to receive and return messages up to a distance of 1551 miles, while on the *Carlo Alberto* signals were received over stretches of land and water. The Marconi company has not been so successful in arranging or syntonizing its apparatus so that its signals cannot be intercepted at other stations, although progress has been made. Signals sent from the *Carlo Alberto* were intercepted by Mr. Nevil Maskelyne at Portcurnow.

As a result of these and other experiments, it has been shown that the distance to which the signals can be sent is a question of power and depends upon the generating apparatus. On the *Carlo Alberto*, for example, it was found that the generating apparatus on the ship was not sufficiently strong to produce waves that would affect the receiving instrument on shore, although the shore signals were received plainly on the ship. To supplant the induction coil that is used to produce the waves at the transmitting station, experiments have been carried on with alternating-current generators employing a step-up transformer. Another feature of interest was the discovery that the signals carry further at night than in the day time, and it has been suggested that the sunlight might act to discharge the aerial wire. The coherer in one form or other is the usual receiving instrument in the different systems of wireless telegraphy, but Marconi brought out in 1902 a new magnetic detecter, which he described before the Royal Society in London, in June. This detecter, which was used during the cruise of the *Carlo Alberto*, consists of two coils of fine copper wire wound around a core of thin wires. The terminals of one coil are connected to a telephone, while those of the other coil lead to the aerial wire at the earth or to the secondary coil of a transformer whose primary is so connected. A permanent magnet revolved by clock work or other mechanism slowly changes the magnetism of the iron core, which, however, lags behind the magnetizing force. If oscillatory currents pass through the coil during the action of the waves, there is a decrease in hysteresis, which seems apparently due to some molecular change. The telephone instead of the relay seems to grow in favor for use with receiving apparatus, as the energy required to produce audible signals is much less than in the case of the relay, which has been generally employed. The coherer is ordinarily employed, and for long distance work a form is used that does not require tapping to restore it to its normal condition. With this instrument the telephone is usually connected in parallel as already indicated. Experiments have also been carried on with various forms of microphones, and also electrolytic coherers, where electrolysis is produced by the oscillations received at the coherer, and as a result the resistance of the circuit varies.

The different navies of the world are now engaged in important wireless telegraphic experiments and in nearly every case the systems adopted have undergone important modifications from the officers or experts in whose hands their direction has been placed. Here, of course, syntony is the all-important problem, as without it a hostile fleet would be able to intercept and use to its own advantage the signals exchanged between the various ships. During the various manœuvres carried on during 1902 wireless telegraphy played an important part, but the various commanders were not altogether unanimous in their opinions as to its advantages.

In conclusion, it may be said that the long distance signalling was the chief work of the year and in the necessary syntonation some slight progress was made, but far less than is desired and hoped for by the friends of the system. Wireless telegraphy is now in the hands of many electrical engineers, and it seems safe to assume that gradual improvements contributed by many of these men will lead to important

advances. When it is remembered that few years have elapsed since wireless telegraphy has been possible, it seems safe to look for important developments in the wireless system and its commercial operation within a brief period.

WISCONSIN, a northern lake State of the United States, has an area of 56,040 square miles. The capital is Madison. The population in 1900 was 2,069,042, and in June, 1902, as estimated by the government actuary, 2,148,000. The populations of the five largest cities in 1900 were: Milwaukee, 285,315; Superior, 31,091; Racine, 29,102; La Crosse, 28,895; Oshkosh, 28,284.

Finance.—The balance on hand in the treasury of the State of Wisconsin on September 30, 1902, was $496,408.74. The receipts from October 1, 1900, to June 30, 1902, were $5,101,232.14. The principal sources of revenue for the year beginning October 1, 1900, and ending September 30, 1901, were: Railroad companies' license fees, $1,600,379.79; annual tax, $496,794.20; life insurance companies' license fees, $263,725; fire insurance companies' license fees, $108,320.89; charitable and penal institutions, $85,824.40; sundry sources, fees, etc., $213,587.99. For the nine months extending from October 1, 1901, to June 30, 1902, the receipts from these sources were, respectively, $857,854.55; $568,160.52; $290,304.41; $115,474.64; $77,926.40; $156,064.42. The disbursements for the period extending from October 1, 1900, to June 30, 1902, were $5,153,716.88, leaving a balance on hand, July 1, 1902, of $443,924. The principal objects of expenditure for the year ending September 30, 1901, were: Charitable and penal institutions, $781,546.51; care of chronic insane in counties, $441,886.36; circuit court, $82,081.33; adjutant-general's department, $100,457.67; legislature, $149,750.27. For the period extending from October 1, 1901, to June 30, 1902, the disbursements for these objects were, respectively: $673,677.81; $404,427.40; $63,231.64; $46,775.86, and $19,079.38. By act of the legislature, the fiscal year was changed so as to end June 30, instead of September 30, as heretofore, which necessitated a report for a period of nine months instead of twelve months.

Agriculture and Industries.—The principal field crops of Wisconsin for 1902, as given by the *Crop Reporter,* were: Corn, 1,504,445 acres, 42,425,349 bushels, $21,212,674; winter wheat, 120,058 acres, 2,197,061 bushels, $1,406,119; spring wheat, 412,046 acres, 7,458,033 bushels, $4,773,141; oats, 2,318,900 acres, 95,037,810 bushels, $28,511,343; barley, 488,421 acres, 16,508,630 bushels, $7,393,970; rye, 328,552 acres, 6,209,633 bushels, $3,104,816; buckwheat, 27,603 acres, 441,648 bushels, $260,572; potatoes, 250,022 acres, 28,752,530 bushels, $9,488,335; hay, 1,920,318 acres, 3,268,604 tons, $25,854,650; tobacco, 48,422 acres, 64,885,480 pounds, $4,541,984; flaxseed, 41,000 acres, 496,100 bushels, $595,320. The farm animals in Wisconsin, January 1, 1903, comprised 519,738 horses, value $40,981,046; 4749 mules, $321,000; 1,032,955 milch cows, $32,031,935; 1,148,698 other cattle, $17,845,142; 1,473,197 sheep, $4,476,457; and 1,686,885 swine, $15,148,227. The abandoned timber claims in the northern part of the State are being rapidly utilized for grazing purposes. This region had been practically worthless and deserted after the timber had been exhausted, but the construction of a number of railroads made it accessible and gave it considerable value.

Conventions and Platforms.—The Republican State convention was held at Madison on July 16. Extended reference was made in the platform to the services of Senator Spooner, and regret was expressed that he had determined not to serve another term. It was stated, furthermore, that if he should alter his decision, the party would support him and advocate his re-election. The last Republican State and national platforms were reaffirmed. The administration of Governor La Follette was indorsed. A plank was included protesting against the interference of federal officials in Wisconsin politics. A demand was made for the uniform taxation of taxable property and also for direct nominations for State, legislative, congressional and county offices.

The Democratic State convention was held in Milwaukee, on September 3. The platform protested against trusts and a pledge was made to proceed against them in cases where the law had been violated.

Political.—During the year the long-standing contest between the Wisconsin Republican machine and that portion of the party led by Gov. Robert M. La Follette (*q.v.*) attracted national attention by reason of its involving the return to the United States Senate of Senator John C. Spooner (*q.v.*). The organization Republicans, with whom Senator Spooner has long been identified, tried to make it appear that the La Follette party was seeking to prevent the senator's re-election which, whatever may have been Gov. La Follette's personal desire, was not the wish of a great majority of his followers. The State convention which renominated La Follette, however, in endorsing the candidacy of Spooner, inserted a clause which practically demanded of him a pledge to support the primary election and railway taxation reform programme of the governor. To this Senator Spooner, without intimating that he disapproved the reforms, replied that the convention had no right to bind him, as the matters were wholly questions of State policy, and had nothing

whatever to do with the national policies upon which he and the party were in complete agreement. The organization by forcing a fight in the convention on the inclusion of this conditional clause in the indorsement of the senator made it seem for the time being that there would be a serious split in the party as a result, as La Follette's followers were apparently just as insistent upon the condition being imposed. Senator Spooner however, in October, announced his decision to become a candidate for re-election without saying a word about the condition. The large number of La Follette's followers who were also advocates of Senator Spooner's re-election, with or without a pledge as to his support of La Follette's reform measures, prevented a fight from being made over the matter, and after the Republican victory at the polls in November there was never any doubt as to Spooner's return. Governor La Follette, who was re-elected, was considerably behind his ticket, a fact said to be due to cutting by the organization Republicans, but the legislature was overwhelmingly Republican, and there was no sign of a movement in opposition to Spooner's re-election. In December announcement was made that his re-election in January, 1903, was assured by a canvass of legislators.

At the November State election, for the first time in the history of Wisconsin, women voted, the last legislature having passed a law allowing them to vote on school questions and for candidates for school offices. They voted November 4 for State superintendent of public schools, county superintendent of schools, and on an amendment changing the term of office of the school superintendent.

Elections.—At the regular biennial State election, held November 4, 1902, a full Republican State ticket was elected. The vote for governor was La Follette (Rep.), 193,417; Rose (Dem.), 145,818, giving La Follette a plurality of 47,599. The State legislature for 1903 will consist of 30 Republicans and 3 Democrats in the Senate, and 75 Republicans and 24 Democrats in the House.

State Officers.—For 1902: Governor, Robert M. La Follette; lieutenant-governor, Jesse Stone; secretary of state and auditor, W. H. Froehlich; treasurer, J. O. Davidson; attorney-general, E. R. Hicks; superintendent of education, L. D. Harvey; commissioner of insurance, Emil Giljohnn; commissioner of railroads, G. L. Rice—all Republicans. For 1903: Governor, Robert M. La Follette, elected for two years, term ending January, 1905; lieutenant-governor, J. O. Davidson; secretary of state and auditor, W. L. Houser; treasurer, J. J. Kempf; attorney-general, L. M. Sturdevant; superintendent of education, C. P. Cary; commissioner of insurance, Zeno M. Host; commissioner of railroads, John W. Thomas—all Republicans.

Supreme Court in 1902 and 1903: Chief justice, John B. Cassoday; associate justices, John B. Winslow, R. D. Marshall, C. V. Bardeen, and J. E. Dodge—all Republicans except Winslow and Dodge, Democrats.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

WISCONSIN, UNIVERSITY OF, Madison, Wis., had in 1902 an attendance of 2810, an increase of 158 over 1901, and 187 instructors. The gross income amounted to $575,000. The new Agricultural Hall, for which the State gave $150,000, was nearly completed and equipped at an additional cost of $25,000. A bill was brought before the legislature asking for increased appropriations, and for a new chemical building, and new courses were added in various departments.

WODEHOUSE, JOHN, first Earl of Kimberley. See KIMBERLEY, FIRST EARL OF.

WOLFF, HERMANN, a German concert impresario, died in Berlin, Germany, February 4, 1902. He was born in Cologne, September 4, 1846; and studied music under Kroll and Wuerst. After distinguished service in the Franco-German War, for which he received the Iron Cross, he followed for a while his father's business of stock-broker. His distaste for business life, however, led him to attach himself to a music publishing house; and a meeting with Rubinstein, followed by a tour with him through Spain, resulted in his adopting the occupation of managing musical events. He displayed great energy and ability in his chosen field, and few important concerts were given in Germany after 1880 which were not under his direction. While connected with the business affairs of von Bülow he founded the Berlin Philharmonic Orchestra, which is now the best-known orchestra in Europe; and the success of many other musical enterprises was due to the force of his personality. He edited the *Neue Berliner Musikzeitung* from 1878 to 1879, and was an associate editor of the *Musikwelt.*

WOMAN'S CHRISTIAN TEMPERANCE UNION, NATIONAL, organized November, 1874, at Cleveland, Ohio, has about 10,000 local unions, with a membership, including children's societies, of over 600,000. Forty-four distinct departments of work, presided over by as many women experts, are conducted by the organization, which claims that through its influence nearly every State in the Union has on its statute books laws requiring the study of scientific temperance in the public schools; prohibiting the sale of tobacco to minors; raising the age of

consent; providing for the better protection of women and girls; the appointment of police matrons; the establishment of industrial homes for girls and of houses of refuge for erring women; and various other legislative work of an important and elevating character. At the twenty-ninth annual convention of the organization, held at Portland, Me., October 17-22, 1902, the treasurer's report for the year, as presented, shows a revenue of $28,824.99, which, with a balance of $536.51 from the previous year, made a total of $29,361.50. The expenditure was $29,315.23, leaving a balance of $46.27 in the treasury. Among the resolutions passed at the convention was one thanking the Fifty-seventh Congress for the passage of a bill appropriating $500,000, "for the construction and maintenance of suitable buildings at military posts and stations already established and occupied, for the conduct of the exchange-store, school, library, reading, lunch and amusement rooms, gymnasium, etc." The place for holding the convention in 1903 was left to the judgment of the executive committee. President, Mrs. L. M. N. Stevens; corresponding secretary, Mrs. S. M. D. Fry, Rest Cottage, Evanston, Ill.

WOMAN'S COLLEGE OF BALTIMORE, incorporated 1885 and opened 1888. The student body in 1902 numbered 355, all of college grade, and the faculty 30. The college has an endowment of $432,000, and grounds and buildings worth $693,000. In 1902 the library contained 9300 bound volumes. The income was $65,583. The year was marked by an increase in the endowment of the college, and the construction of an additional college building. Changes in courses of instruction were decided on to take effect in 1903.

WOOL. The woolen industry was in a prosperous condition during 1902. The growers, merchants, and manufacturers together participated in the benefits of an active business, and both raw material and manufactured products have been in active demand. The number of sheep in the United States at the spring shearing reached 42,950,056, the largest number since 1894, though the increase in 1902 was not as great as in previous years. The clip was greater than in 1901 by 3,793,500 pounds, and the only State showing a marked falling-off was Texas. In the northwest, especially in Montana and Wyoming, large gains were to be noted in the clip. In Australia, where considerable amounts of wool are produced, conditions were not as favorable as in the United States, there being a heavy mortality among the sheep, on account of the drought. This shortness in the supply, together with an active demand for wool in continental markets, tended to keep prices up, so that the producers in nearly all cases secured satisfactory returns for their fleeces and a distinct advance of prices through the year occurred, the quotations at the end of the year for the best grades being about four cents a pound higher on an average than at the beginning. The conditions existing in the trade perhaps are best shown by the statement that the supply of wool on hand in the United States at the close of 1902, exclusive of that held by manufacturers and in bond was 138,259,000 pounds, as compared with 177,191,000 pounds in 1901. The wool in bond amounted to 29,695,926 pounds at the close of 1902, as compared with 35,012,036 pounds a year before. This makes the total supply 167,954,926 pounds at the end of 1902, as compared with 212,203,036 in 1901, or a decrease of about 26 per cent. Another measure of the year's activity is the fact that the imports of wool for the fiscal year (ending June 30) 1901-02, amounted to 166,262,148 pounds, as compared with 103,583,505 pounds, being the largest since 1896-97 previous to the passage of the Dingley Bill, when they amounted to 350,852,026. The imports for the calendar year were 176,292,639 pounds, valued at $19,590,227, as compared with 124,964,377 pounds, valued at $14,017,432 in 1901. The various manufactured articles including cloth, clothing, etc., imported in 1902 were valued at $18,771,774, as against $15,604,780 in 1901. See table on the following page.

WRESTLING. The championships of the Amateur Athletic Union, under whose auspices the principal amateur wrestling contests of the United States are held, were won as follows in 1902: 105 pounds, William Karl; 115 pounds, George Hembert; 125 pounds, J. Neflock; 135 pounds, F. Cook; 145 pounds, N. Nelson; 158 pounds, J. Schuman.

WYOMING, a northwestern State of the United States, has an area of 97,890 square miles. The capital is Cheyenne. Wyoming was organized as a Territory in 1868, and admitted to the Union July 10, 1890. The population in 1900 was 92,531, and in June, 1902, as estimated by the government actuary, 99,000. The populations of the largest cities in 1900 were: Cheyenne, 14,687; and Laramie, 8207.

Finance.—The balance in the treasury of the State of Wyoming at the beginning of the fiscal year ending September 30, 1902, was $168,916.37. The total receipts during the year were $478,758.12, and the expenditures $294,636.53, leaving a balance on September 30, 1902, of $253,037.96. The main items of revenue and the amounts derived therefrom were: The State tax, $258,104.11; land leases and sales, $99,561.05; fees and earnings of officers and State institutions, $68,677.46. The State

WOOL PRODUCTION IN THE UNITED STATES, 1902 AND 1901.
Compiled from Statistics in the *American Wool and Cotton Reporter.*

	1902.			1901.		
	Number of sheep.	Weight per fleece.	Clip (pounds).	Number of sheep.	Weight per fleece.	Clip (pounds).
Maine	239,973	6.5	1,559,818	236,495	6.5	1,537,217
New Hampshire	52,410	8.09	424,100	51,306	8.5	434,297
Vermont	143,607	8.4	1,206,298	142,506	8.1	1,154,298
Massachusetts	35,205	7.	246,435	35,610	7.	249,270
Rhode Island	8,015	5.4	43,281	7,816	5.	40,063
Connecticut	32,615	6.	195,690	33,817	6.5	219,800
New York	753,710	6.	4,522,260	754,666	6.	4,527,996
New Jersey	38,310	4.6	176,226	40,515	4.7	190,420
Pennsylvania	863,840	5.7	4,923,888	763,342	5.8	4,426,804
Delaware	13,500	5.	67,500	14,200	5.	71,000
Maryland	125,860	5.2	654,472	125,017	5.2	650,088
Virginia	364,480	4.4	1,603,712	362,490	4.3	1,558,707
North Carolina	290,413	3.	871,239	232,413	3.1	720,480
South Carolina	84,910	3.4	288,694	94,826	3.2	303,443
Georgia	279,020	4.	1,116,080	279,857	4.	1,119,428
Florida	113,788	3.	339,364	101,000	3.4	343,700
Alabama	170,312	2.7	459,842	161,312	2.8	451,678
Mississippi	237,120	3.1	735,072	210,126	3.	630,384
Louisiana	112,303	3.4	381,830	102,413	3.5	358,445
Texas	1,317,250	8.2	10,801,450	1,517,821	8.	12,142,568
Arkansas	111,613	3.2	357,161	101,825	3.3	336,022
Tennessee	276,772	4.	1,107,088	240,763	3.9	938,975
West Virginia	483,500	5.3	2,566,550	423,500	5.4	2,286,900
Kentucky	*650,337	*5.	*3,254,185	447,740	4.7	1,724,378
Ohio	2,580,640	5.6	14,451,584	2,675,333	5.7	14,249,326
Michigan	1,563,200	6.5	10,160,800	1,553,065	6.5	10,094,922
Indiana	856,400	6.3	5,395,320	653,446	6.4	5,182,054
Illinois	688,545	6.9	4,750,960	636,186	6.8	4,320,064
Wisconsin	811,310	6.6	5,354,646	711,520	6.75	4,803,760
Minnesota	410,263	6.7	2,748,694	400,163	6.8	2,721,108
Iowa	634,800	6.8	4,316,640	733,358	7.	5,133,506
Missouri	690,000	6.3	3,906,000	680,000	6.2	4,299,600
Kansas	156,753	7.1	1,112,829	278,812	7.	1,951,684
Nebraska	315,610	6.6	2,281,096	352,842	6.4	2,858,188
South Dakota	465,200	6.5	3,023,800	384,546	6.5	2,499,549
North Dakota	425,300	6.6	2,806,980	375,415	6.8	2,552,822
Montana	4,889,810	7.	34,218,670	4,176,923	7.	29,238,461
Wyoming	4,452,896	7.4	32,869,835	3,814,974	7.5	28,230,170
Colorado	1,967,300	6.4	12,590,720	2,498,200	6.5	16,238,300
New Mexico	3,250,100	4.3	13,975,430	3,050,000	4.5	13,725,000
Arizona	780,515	7.3	5,697,759	809,620	7.2	5,829,264
Utah	2,925,583	6.	17,553,500	2,967,350	6.	17,803,500
Nevada	775,300	7.4	5,737,220	875,315	7.3	6,389,799
Idaho	2,810,310	7.7	21,639,387	2,662,337	7.7	20,507,594
Washington	711,315	8.4	5,985,046	828,202	7.8	6,211,515
Oregon	2,334,423	8.	18,675,384	2,596,086	7.7	20,494,598
California	1,706,823	8.5	14,507,995	1,927,882	8.5	16,386,997
Oklahoma	38,308	6.5	293,002	48,000	6.4	307,200
	42,950,056	†6.5	282,171,462	42,170,033	†6.6	278,355,033
Pulled wool			41,936,000			38,142,500
Total product, 1902			324,107,462			316,497,533

* Figures of board of equalization.
† Average.

debt on September 30, 1902, amounted to $300,000, showing a reduction of $20,000 during the fiscal year. A further reduction of $20,000 was made on December 31, 1902, leaving a total of $280,000.

Agriculture and Industries.—The principal field crops of Wyoming for 1902, as given by the *Crop Reporter*, were: Spring wheat, 23,130 acres, 543,555 bushels, $440,280; oats, 36,179 acres, 1,302,444 bushels, $651,222; potatoes, 3,702 acres, 396,114 bushels, $241,630; hay, 160,324 acres, 264,535 tons, $1,925,815. The most interesting development in agriculture was the extension of irrigation. An area of 210,359 acres had been segregated, to which irrigation canals were being built. The State charges settlers $0.50 per acre for this land. The proceeds are turned into the irrigation fund. The fund on hand January 1, 1903, was $1,047.49. The area of school and selected lands under lease by the State, September 30, 1902, was 2,302,501 acres, as against 1,860,225 acres two years previous. The average valuation of leased land was $0.81 per acre in 1900, $0.83 in 1902. Stock-raising is of far more importance than agriculture in Wyoming. On January 1, 1903, there were in the State 113,444 horses, valued at $3,282,736; 1481 mules, $78,292; 19,587 milch cows, $753,316; 796,060 other cattle, $18,553,928; 5,826,150 sheep, $14,306,695; and 15,983 swine, $168,780. No

State except Montana exceeded Wyoming in the number and value of sheep. The number increased more than 600,000 in 1902. The 1902 wool-clip was 32,869,835 pounds, and had an approximate value of $4,100,000. The hostility existing between sheep men and cattle rangers, due to the contest for pasturage on public lands, resulted in 1902 in numerous severe conflicts. A number of men and thousands of animals were killed or injured. There was a considerable decrease in the output of copper. The North American Copper Company acquired several large properties at Grand Encampment, and commenced the construction of a concentration plant. The mine inspector reported that approximately 15,000 men were engaged in mining and transporting coal. He estimated the 1902 output at 5,000,000 tons. The output in 1901 was 4,485,374 tons and had a value of $6,060,462. At various times during the year there was great excitement for small cause in the oil fields. A great deal of prospecting was done, but there was no marked increase in production.

Conventions and Platforms.—The Republican State convention was held at Rawlins on July 16. In the platform the President and administration were strongly indorsed. Special mention was made of the assistance given by the President to the western States. Trusts and combinations were condemned, in instances where they worked to create monopolies, to limit production, or to control prices. At the same time it was stated that the party in Wyoming recognized the necessity and propriety of the honest cooperation of capital to meet new business conditions. A special plank declared in favor of an early completion of the allotments of land in severalty to the Indians of the Shoshone reservation and the purchase from the Indians by the government and the opening to homestead settlement of the portion of the reserve unoccupied and unnecessary for the support of the Indians. The plea in behalf of this action was that it would tend to the development of the agricultural resources of the State.

The platform of the Democratic State convention declared in favor of the election of United States senators by direct vote; municipal ownership of public utilities; the original form of Australian ballot, and the compulsory arbitration of labor disputes. Trusts were condemned, and the amendment of the interstate trust laws was called for. Reference to State legislation was made as follows: "We propose that the State of Wyoming awake from its dormant condition and put itself in line by means of similar domestic legislation with the other progressive States of the Union."

The Socialist platform advocated the education of all children up to the age of eighteen years, with State and municipal aid for food, books and clothing; the initiative and referendum; public ownership of utilities; equal civil and political rights for men and women; the right to recall representatives of the people when their conduct merited disapproval, and State or national insurance of working people in case of accidents, lack of employment, sickness and want in old age.

Elections.—At the regular biennial State election, held November 4, 1902, a full Republican State ticket was elected. The vote for governor was Richards (Rep.), 14,483; Beck (Dem.), 10,017, giving the Republican candidate a plurality of 4466. The State legislature for 1903 will consist of 20 Republicans and 3 Democrats in the Senate, and 46 Republicans and 4 Democrats in the House.

State Officers.—For 1902: Governor, De Forest Richards; secretary of state and lieutenant-governor, F. Chatterton; treasurer, G. E. Abbott; auditor, Leroy Grant; attorney-general, J. A. Van Orsdel; superintendent of education, T. T. Tynan—all Republicans. For 1903: Governor, De Forest Richards (elected for four years, term ending January, 1907); secretary of state and lieutenant-governor, F. Chatterton (term ends January, 1907); treasurer, Henry G. Hay, appointed (term ends February 21, 1903); auditor, Leroy Grant (term ends January, 1907); attorney-general, J. A. Van Orsdel, appointed (term ends February 21, 1903); superintendent of education, T. T. Tynan, term ends January, 1907—all Republicans.

Supreme Court for 1903: Chief justice, S. T. Corn; associate justices, C. N. Potter and Jesse Knight—all Republicans, except Corn, Democrat.

For congressional representatives, see UNITED STATES (paragraph Congressional Representatives).

X-RAYS. See RÖNTGEN RAYS IN MEDICINE.

YACHTING. In 1902 the absence of races in competition for the *America's* cup brought the yachting season less prominently before public attention than in 1901, although to enthusiasts the season was filled with interesting events. Chief of these was the series of races sailed on Lake St. Louis, Montreal, between the Royal St. Lawrence Yacht Club of Montreal, holder of the Seawanhaka international challenge cup for small boats, and the Bridgeport (Conn.) Yacht Club, which sought to bring back the trophy to the United States. The defender was the *Trident* and the challenger the *Tecumseh*. Four races were sailed, over a 12-mile course, and resulted as follows: (1) Windward and return, *Trident* won by 14 minutes 52

seconds; (2) triangular course, *Tecumseh* won, by 1 minute 22 seconds; (3) windward and return, *Trident* won, by 4 minutes 11 seconds; (4) triangular, won by the *Trident* by 5 minutes 27 seconds. Abroad, at the Kiel regatta, given by the German emperor, there were two English yachts, ten German (one of which, the *Samoa III.*, was sailed by the Emperor himself), two French, one from Sweden, and one, the *Uncle Sam,* from the United States, in the race for small boats. The *Uncle Sam,* a 21-footer, won the trophy in two races, winning the first by 22 minutes 26 seconds, and the second by 24 seconds. In October, 1902, the New York Yacht Club accepted a challenge from the Royal Ulster Yacht Club for a series of races for the *America's* cup, to be sailed in August, 1903. The yacht, a 90-footer, was to be owned by Sir Thomas Lipton and would be called *Shamrock III.*

YALE UNIVERSITY, New Haven, Conn., founded 1701. The year 1902 evidenced the influence of the bicentennial celebration (1901) in increased numbers, activity, and enthusiasm. Of the bicentennial group of buildings, Woolsey Hall or the Auditorium, the Memorial Hall, and Ryers Hall in connection with the Sheffield Scientific School, were completed during the year. The most important gift of the year was the Southworth legacy of $160,000. Yale Field was transferred to the University Corporation. The increased attendance is most marked in the Medical and Law schools and in the School of Forestry, though there is a marked increase of graduate students as well. Additional instructors were appointed in the School of Forestry and a journal of forestry established. The university announced its adherence to the old plan of admitting students to all professional schools without the baccalaureate degree, as a preliminary requirement; and also the continuation of the traditional requirement of Greek for admission. On the other hand, students entering from other colleges without Greek are permitted to graduate. There is a distinct opposition to any shortening of the collegiate course.

The teaching staff of the university now numbers 311. The total registration of students was 2816, as compared with 2685 of the previous year. This registration is divided as follows: Graduate school, 346; college, 1205; Sheffield Scientific School, 738; fine arts, 29; music, 47; forestry, 40; divinity school, 112; law school, 253; medical school, 145. The registration in the fall of 1902 was 2804.

YOUNG MEN'S CHRISTIAN ASSOCIATION. The work of the year 1902 shows a marked improvement over the preceding year. The number of associations in North America has reached 1575, showing an increase of 99 within the year. There are 6335 associations in the world. The total membership of the American branches is 323,224, having 414 buildings which they own and which have a value of $22,803,030. The number of libraries owned at the end of the year has reached 736, containing 544,275 volumes. The total expenditure for the year for local, State and international (North America) association branches amounted to $3,535,783. In connection with the army work of the association a bill was passed by Congress and signed by the President authorizing the secretary of war to permit the erection of association buildings on military reservations. A new building was erected during the year for navy work in Brooklyn, where also a building for the use of colored associations was presented by George Foster Peabody, valued at $8000. The number of railroad associations is now 175, a gain of eighteen during the year; the membership has increased from 42,000 to over 50,000. Twenty buildings have been erected during the year, making a total of 92 buildings now owned or set apart for railroad associations, representing a value of over $1,500,000. The executive work of the association is divided so as to cover American and foreign fields. The Central International Committee, with headquarters at No. 3 General Defour, Geneva, Switzerland, has control of all the branches in Europe, Asia, Africa, and Australia, and is composed of members representing the various nationalities. Chairman, Edouard Barde; secretary, Louis Perrot. The international committee is the general executive of the associations of North America. Chairman, Lucien C. Warner; general secretary, Richard C. Morse, 3 West Twenty-ninth Street, New York City.

YOUNG PEOPLE'S CHRISTIAN UNION, a society of the United Brethren in Christ, founded in 1890, the work of which is similar to that of the United Society of Christian Endeavor. It now has 1689 societies and 63,846 members, not including an approximate membership of 16,000 in the junior organizations. The general convention, whose sessions are biennial, met in July, 1902, in Canton, O.; its next meeting will be held in Grand Rapids, Mich. The official organ of the union, *The Watchword,* published weekly under the editorship of Rev. H. F. Shupe, has a circulation of 27,000. President, Rev. John G. Huber, A.M.; corresponding secretary, Rev. Charles W. Brewbaker, A.M., S.T.D., Canton, O.

YUKON TERRITORY, formerly one of the districts comprising the Northwest Territories of the Dominion of Canada, but since 1898 a separate territory, lies directly east of the United States Territory of Alaska. It has an estimated area of 198,300 square miles, and a population estimated in 1902 at about 27,219, of

whom 70 per cent. are Americans. Dawson City, the seat of government, has a population of about 10,000. The majority of the inhabitants of the territory are miners, living in the Klondike gold-fields, and the name Klondike, although properly the designation of but a small part of the territory, has come to be commonly applied to the whole. The administration is in charge of a commissioner, acting under the Dominion minister of the interior. He is assisted by a territorial council composed of the principal appointive Dominion officials in the territory and two members elected by the qualified voters. In 1901 the revenues amounted to $1,993,983, including $592,661 from gold royalties; $225,595 from mining fees and leases; $125,861 from free miners' certificates; $108,272 from telegraphs, and $630,959 from customs. The expenditures in that year amounted to $1,671,085, of which $498,825 was expended on mounted police; $386,064 on public works; and $319,761 on salaries, surveys, and administrative expenses. The appropriations by the Dominion government in 1902 amounted to $1,092,800, which sum it was estimated would be more than met by the territorial revenues. Unofficial estimates of the value of the Yukon trade placed the imports at $2,823,633 in 1901, and $2,019,782 in 1902, and the exports at $13,083,676 in 1901 and $14,083,487 in 1902. The value of the gold production in 1902 was estimated at $24,000,000, as compared with $18,000,000 in 1901. For 1903 a very considerable reduction was looked for, as the old creeks and finds have been about worked out, and there have been no new discoveries for over a year. A continuation of the present prosperity seems to be altogether dependent on the discovery of gold-bearing quartz containing enough pay-ore to make it worth while to mine. Early in 1902 the Yukon council laid a petition before the Dominion government making numerous requests in the line of representation in the Dominion parliament, an increase in the representative character of the council, and a greater amount of autonomy in local affairs.

ZANGEMEISTER, Karl, a German archæologist, died in June, 1902, at Heidelberg. He was born November 28, 1837, in Hallungen, Gotha; studied at Bonn and Berlin, devoted a year and a half in Italy to the study of epigraphy, and returned to Berlin in 1865, where he was employed in connection with the *Corpus Inscriptionum Latinarum*. In 1868 he was appointed to a position in the Gotha library, and in 1873 became director of the Heidelberg University library, which, under his care, became known as one of the best managed in Germany. He was a pupil and intimate friend of Mommsen, and was conceded to be the foremost living authority in his special branches of palæography. After 1892 he acted as president of the Limes-Kommission, and was also a member of the Berlin Academy of Sciences. Among his most important writings may be mentioned: "Inscriptiones Parietariæ Pompeianæ, Herculanensis, Stabianæ," for the *Corpus Inscriptionum Latinarum* (1871), and "Glandes Plumbeæ Latine Inscriptionæ," for *Ephemeris Epigraphica* (1885).

ZANZIBAR, a British protectorate, consisting of the island of Zanzibar (area 640 square miles, population 150,000), the island of Pemba (area 380 square miles, population 50,000), and several smaller islands along the shore of German East Africa. Government is administered by a native sultan (seyyid) under the supervision of a British agent and consul-general. The mainland territories of the sultan are leased to Great Britain. In 1900 imports and exports were valued at £1,116,041 and £1,167,041 respectively; in 1901, £1,196,831 and £1,168,518 respectively. The most important export produced in the islands is cloves. Seyyid Hamoud bin Mahomed bin Saïd, who succeeded to the sultanate on the death of Hamed bin Thwain in August, 1896, died July 18, 1902. He was succeeded on the twentieth by his son, Seyyid Ali. Until the new sultan, who was born in 1884, shall attain the age of twenty-one, the government will be administered in the name of Mr. Alexander Stuart Rogers, prime minister, as regent. Seyyid Ali bin Hamoud has received some educational training in England. A treaty between Great Britain and the United States concerning import duties in Zanzibar was signed on May 31, 1902, and the ratifications were exchanged on the seventeenth of the following October. The treaty provides that for a period of 15 years the tariffs shall not exceed 10 per cent. of the value of the merchandise at the spot of importation, except in the case of spirits, fire arms, and ammunition.

ZANZIBAR, SULTAN OF. See Hamoud bin Mahomed bin Saïd.

ZIEMSSEN, Hugo Wilhelm von, a German physician, died January 21, 1902, at Berlin. He was born December 13, 1829, in Greifswald, and studied medicine at Berlin and Würzburg. In 1863 he became professor of pathology and therapeutics at Erlangen, and director of the city hospital of Munich in 1874. His most valuable work was in connection with the application of electricity in medicine, in the treatment of typhus, pneumonia, and diseases of the œsophagus and larynx. He was the author of the *Handbuch der speciellen Pathologie und Therapie*, a standard work in German medical literature (17 vols., 1875-84; 3d ed. 1886); *Die Kaltwasser-*

behandlung des Typhus (with Zimmermann, 1870); *Die Elektricität in der Medizin* (5th ed. 1887); *Ueber die Behandlung des Magengeschwürs* (1871); *Annalen der städtischen Krankenhäuser in München,* which he compiled while director (1878-94).

ZINC. The rapid expansion which has characterized the zinc mining industry in the United States during recent years was well maintained in 1901 and 1902. According to the final returns published by the United States Geological Survey, the output in 1901 was 140,822 short tons, valued at $11,265,760. The output in 1902 is estimated by *The Engineering and Mining Journal* at 158,447 short tons, with a value of $14,380,650. This is more than twice the total reported for 1894, and nearly four times that of 1885. The domestic consumption of zinc has nearly kept pace with the production, so that the exports have amounted to only a few thousand tons annually. Among the important developments during 1902 were the erection of several new smelters in the natural gas region of Kansas, where the metallurgical industry is largely centred, and the consolidation of some of the smaller producers with the larger concerns.

ZIONISM. See Jews.

ZOLA, Emile Edouard Charles Antoine, French novelist, died September 29, 1902, at Paris, where he was born April 2, 1840. His father, half-Italian and half-Greek, was an officer in the French army, and a civil engineer of some note. He died during Emile's childhood, leaving his Norman widow penniless. Emile was educated at a lycée in Paris and was a voluminous reader. He found employment with the publishing firm of Hachette, and began contributing stories and articles to journals, all the time suffering severest poverty. Some of these stories appeared as the *Contes à Ninon* in 1864. *Thérèse Raquin* came out in 1867, and, by his admirers, is classed among his masterpieces, as is also his *L'Attaque du moulin* (1880) for its nervous, compelling qualities. His book of critical papers called *Mes Haines* (1866) is still of interest. In testimony of his courageous foresight at that period (1867) may be cited his appreciation of impressionism in his book on Manet.

The second period of activity of the future chief of the "naturalistic" school began with his great series of twenty novels under the general title of *Les Rougon-Macquart: une histoire naturelle et sociale d'une famille sous le second empire* (1871-93). These "human documents" are: *La Fortune des Rougon; La Curée; Le Ventre de Paris; La Conquête de Plassans; La Faute de l'abbé Mouret; Son Excellence Eugène Rougon; L'Assommoir; Une Page d'Amour; Nana; Pot-Bouille; Au Bonheur des Dames; La Joie de Vivre; Germinal; L'Œuvre; La Terre; Le Rêve; La Bête Humaine; L'Argent; La Débâcle;* and *Le Docteur Pascal.* This colossal work, which may be called the Tragédie Humaine, as a counterpart to Balzac's Comédie Humaine, was widely read at home and abroad, violently arousing the literary world. It was naturalistic in that it undertook to photograph a whole cross-section of French society in detail with an unpitying exactness unfamiliar to polite literature. It was a study of the hereditary and sociological, the political and industrial, influences of the epoch on the race. It distinctly, brutally, forced on the attention of men the sores of civilization. These repulsive, but masterfully graphic pictures of the ravages of strong drink, prostitution, the homicidal mania, and the passion for money, for political power, and for scientific fame, seemed for a time to threaten the foundations of conventional art. To the conservers of tradition, Zola seemed to depict life, only in part, through the oblique, leering vision of the animal in man. They could not forgive him for his hard, harsh, "sordid epic" so "fundamentally at enmity with joy"; and for his attempt to transform art into a scientific or statistical process. To the young radicals of the day, however, Zola was the true and mighty product and force of a scientific and utilitarian age. He was an apostle performing an unpleasant, unavoidable duty in order that the world might hasten its upward progress, and literature become a more open, sincere, and potent factor in the uplift of humanity. They did not overlook the sweet, pure idealities of *Le Rêve.* They pointed to *L'Assommoir* as the most telling temperance tract in letters. There was *Nana,* too—that everlasting damnation of harlotry; for never in the history of fiction had this vice been painted with such epic hideousness and unqualified disgust. There was *La Débâcle,* now generally considered Zola's finest masterpiece and as perhaps unexcelled in contemporary fiction: an elaborate and vivid picture of degenerate and agonized France biting the dust under the heel of Prussia. And then, finally, there was the unquestioned art of Zola's pen. His narrative proceeds from the simple and direct to the immense and overwhelmingly inevitable, avoiding the theatrical and melodramatic, and all set forth with a compelling power that was emphasized by its concentration as well as by its accumulating recurrence and by an unsurpassed employment of living phrase.

In his third and last literary period Zola, who had become not only celebrated

but prosperous, and the advocate of science as the practical guide and hope of the race, and of labor as the true daily religion, turned toward idealism. His next series of novels was *Les Trois Villes: Lourdes* (1894); *Rome* (1896); and *Paris* (1898). And his last series was *Les Quatres Evangiles: Fécondité* (1899); *Travail* (1900); *Vérité* (1902); and *Justice,* left unfinished. All these novels, vast in design, each with forty or more personæ and multiple perspectives of the panoramas of human endeavor, are, however, not vital, vibrant stories. They are more or less factitious expositions of a moralizing fact-accumulator and philosopher dealing with wooden characters anent, for instance, the blessings of fruitfulness, the hierarchy of the church, etc. In the domain of fiction these volumes have been taken as testimony of the passing of the naturalistic school, and of the "bankruptcy of science" as a universal panacea, although Zola said he never held that science would make the world happy.

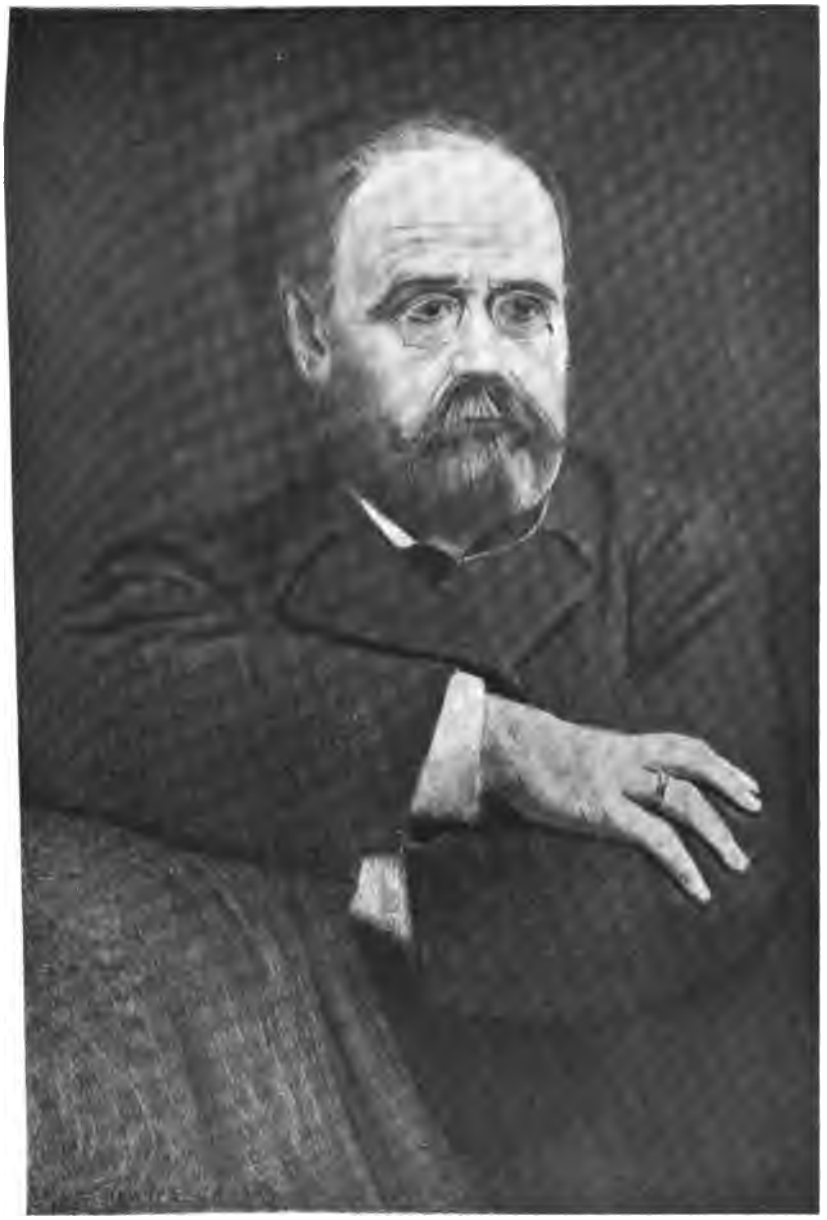
It remained for him, as a man, to silence the tongues of personal detractors by the rôle he played in the Dreyfus case. In 1898 he came forth to denounce, in his famous *J'accuse* letter, the procedure by which the French nation had involved itself in connection with this insignificant and despised Jew. Zola lost nearly all his friends, saw his fortune swept away, and was driven from his home and his country, barely escaping with his life at the hands of the Parisian mobs. Abroad, however, the "gutter" novelist, this "groveler" in the "troughs" of literature, was now recognized as faithful to the ideals of a lofty conscience alive to truth and justice. And many of his old literary enemies began to understand how after all it might be possible that years before, in creating the Rougon-Macquart series, he had deliberately sacrificed his artistic talents to a utilitarian end, that he had been an offender against taste, not morals, and that he had desired the sad satisfaction of being a reformer rather than the pleasing vanity of being an author.

Zola was accidentally asphyxiated at night, in his chamber, by coal gas escaping from a chimney. He left a widow with no children. His funeral rivaled that of Hugo in public interest, 60,000 persons following the remains to the grave. Zola was a bourgeois in type; of medium height and stout; with a tired, sad face. He was a ready talker, but had a poor, high voice. His friends esteemed him as a simple, quiet, good man who, under a somewhat blunt and stern exterior, was always ready to lend a helping hand. His life was unflinchingly devoted to the rights and wrongs of the oppressed classes and of the miserably erring. A stormy, virile spirit, actively concerned with many widely different subjects, and troubled with a polemical career, he was nevertheless the most steady and indefatigable of writers.

ZOOLOGIGAL EXPEDITIONS AND STATIONS. During 1902 the number of expeditions and stations was very considerable and the following summary refers only to the more important.

Expeditions.—The United States Fish Commission steamer *Albatross* sailed from San Francisco, March 11, for a marine biological survey of the Hawaiian Islands. The work was in charge of Dr. Charles H. Gilbert and his associate, Prof. C. C. Nutting. The vessel remained at work until August, when she returned to San Francisco. Extensive and important collections were made in all the great groups of marine animals. President D. S. Jordan sailed for Samoa, June 12, where in company with Prof. V. L. Kellogg, he spent the summer collecting fishes and investigating the fish fauna of the Samoan Islands. Prof. Alexander Agassiz returned in the spring from a survey of the Maldive Islands, where he had spent some time in the study of coral reefs. Prof. C. H. Eigenmann spent a part of the early spring in western Cuba, exploring caves and investigating their fauna. Many specimens of blind fish were secured and much important information was obtained in regard to their distribution and breeding. Prof. W. A. Herdman spent the greater part of the year in Ceylon investigating the pearl-fisheries, especially in the Gulf of Manaar. His objects were the inspection of the oyster banks, investigations into the marine zoology of Cingalese waters, and the selection of a suitable spot for a marine laboratory. His observations convinced him that "there is no reason for despondency in regard to the future of the pearl-oyster fisheries, if they are treated scientifically." Mr. J. S. Budgett left London for Uganda and the Semliki River late in May, where he planned to collect mammals, birds and fishes, and, if possible, study the habits of the okapi.

Stations.—Turning now to permanent stations, we find that the most famous one, Naples, has outgrown its present equipment and has begun the building of an addition which will double the capacity of the working part of the laboratory. At present America maintains only three tables, which are not nearly enough to provide for the applicants, for during the past eleven years 69 Americans have studied at the station. The well-known laboratory at Bergen, Norway, has enlarged its facilities and made plans for a winter school of biology to be held at the station. The station at Arcachon, France, is now well equipped, but has not as yet drawn many students. A subsidiary station has been opened at Guethary, where the opportunities



EMILE ZOLA

for dredging are said to be excellent. Of American stations, very successful seasons were enjoyed at the Tufts College station, South Harpswell, Maine; the station of the Brooklyn Academy of Arts and Sciences, at Cold Spring Harbor, Long Island; the University of California station at San Pedro; and the University of Minnesota station, on the straits of Juan de Fuca. Most interest has centred, however, around the stations of the fish commission at Woods Hole, Mass., and Beaufort, N. C., and in the relation between the Marine Biological Laboratory at Woods Hole and the Carnegie Institution. At the fish commission stations much work was done in the way of investigating the fauna of the regions about the laboratories. At Woods Hole several very successful dredging trips were made to points forty or fifty miles from the laboratory, and a number of marine invertebrates were added to the known fauna of the Woods Hole region. At Beaufort, even more interesting results were obtained, as the fauna there is not nearly so well known as at the Massachusetts station. The most remarkable discovery was that of a submarine bank about twenty miles off shore which seems to be a veritable coral reef, with a real coral reef fauna. Much discussion has resulted from the action of the Corporation of the Marine Biological Laboratory in voting, in August, to transfer the laboratory and its equipment to the Carnegie Institution, in return for certain financial benefits. Although there were only two votes against the plan, one of the two objectors proved so successful an opponent of the plan that it was finally abandoned in November by the action of the Carnegie Institution itself, which has, however, voted a considerable sum of money to the laboratory and has at its disposal twenty tables for investigators. Although the laboratory enjoyed a fairly successful season, its financial condition was critical.

ZOOLOGICAL LITERATURE. The amount of zoological literature published annually continues very large, and in the space at our disposal we can speak of only those books or papers which are of special interest. A new zoological, or perhaps more properly, biological journal has been launched, called *Archiv für Protistenkunde,* devoted exclusively to the publication of papers upon unicellular animals and plants. The *Archiv* will be published at irregular intervals without set limits as to size, and contributions will be printed in English, French, or German.

Popular Books.—The output of popular books on zoology has been unusually large, and the quality is as a rule very high. One of the most attractive is Beddard's *Mammalia,* vol. x. of the *Cambridge Natural History,* a book of over 600 pages, with numerous, if not always satisfactory, illustrations. It is decidedly the best book on mammals now extant, and of course its scientific accuracy and value are fully guaranteed by the author's standing among zoologists. A very handsome, as well as useful, work is Jordan and Evermann's *American Food and Game Fishes,* a volume of nearly 600 pages, notable for the very numerous illustrations, most of which are full-page plates, many beautifully colored. In the American Sportsman's Library three volumes have appeared which are sure to attract much attention. One of these deals with game birds. (See ORNITHOLOGY.) One of the others is entitled *The Deer Family* and is the work of Theodore Roosevelt, D. G. Elliot, and others. The third volume of the series is on *Salmon and Trout,* by D. Sage and others, and is a somewhat larger volume with over 400 pages. In England a number of popular books have appeared, of which perhaps the most interesting is Alcock's *A Naturalist in Indian Seas.* The volume by C. J. Cornish, entitled *The Naturalist on the Thames,* is a very pleasantly written and well illustrated book of 268 pages. In the so-called *Woburn Library* has appeared a series of books dealing with the fresh-water fishes, marine fishes, birds, butterflies and moths, and mammals of Great Britain, written by various authors, Sir Harry Johnston furnishing the volume on mammals. The same publishers have issued a volume by T. Saville-Kent on *Lizards, Living and Extinct.*

Text-Books.—Some very valuable text-books have been issued during 1902, chiefly, however, in Germany. Professor J. S. Kingsley has published a translation of the fifth German edition of Hertwig's *Manual of Zoology.* From Prof. H. S. Pratt we have a very useful little book, *A Course in Invertebrate Zoology,* containing directions for the dissection of a considerable variety of invertebrates. In England volume ii. has appeared of Bourne's *Introduction to the Study of the Comparative Anatomy of Animals,* a book of over 300 pages. At Jena, after a delay of nine years, there has at last appeared the first two sections of the general part of Korscheldt and Heider's *Lehrbuch der vergleichenden Entwicklungsgeschichte der wirbellosen Thiere,* consisting of 548 pages. The concluding volume is promised at an early date. From the same press comes Ziegler's *Lehrbuch der vergleichenden Entwickelungsgeschichte der niederen Wirbelthiere,* a finely illustrated volume of more than 375 pages. The book is the product of twelve years' careful work and really fills a gap in the list of embryological text-books. A third important work from the same press is Schneider's *Lehrbuch der vergleichenden*

Histologie der Thiere, a valuable work of a thousand pages. There is one more book which is worthy of mention as a text-book, and that is Jordan and Heath's *Animal Forms: a Second Book of Zoology.* A very valuable work, of 354 pages, is Chapman's *The Foraminifera, an Introduction to the Study of the Protozoa.* Five valuable papers on the brachiopods have appeared during the year. Of these the largest and perhaps the most important is Morse's *Observations on Living Brachiopoda,* a memoir of 70 pages and 22 admirable plates. Three of the other papers are by Naohidé Yatsu and deal with the Japanese species of Lingula, its development, histology, and habits. Of a very different nature, but more practically important, is a little pamphlet of only 16 pages on *The Rabbit Pest in Australia, Its Cause and Its Cure,* by W. Rodier. In the well-known, magnificent series of monographs from the Naples zoological station, a zoological volume has recently appeared, written by Theodor List and entitled *Die Mytiliden des Golfes von Neapel.* Of the great German work, *Das Tierreich,* a number of parts have appeared dealing with mollusks, worms, and arthropods; seventeen parts are now completed.

General Treatises.—Among the series of books recounting the zoological or biological characteristics of special regions there are several worthy of mention. The sixth and last part of *Zoological Results* of the Willey expedition, based on material collected in New Britain, New Guinea, Loyalty Islands, and elsewhere, has appeared. The third part of the first volume of Mr. J. Stanley Gardiner's *Fauna and Geography of the Maldive and Laccadive Archipelagoes* has appeared, giving an account of the echinoderms, orthoptera, crabs, fishes, and turbellaria, each article prepared by a specialist in the group. The scientific results of the German *Valdivia* expedition and of the Dutch *Siboga* expedition are now appearing, and a number of volumes or parts of volumes have appeared. A most important work to zoologists is the first volume of Sherborn's *Index Nominum Animalium,* a book of 1300 pages, giving upwards of 60,000 names of animals proposed in the years 1758-1800, inclusive. The work is being prepared under the supervision of a committee from the British association, with the additional cooperation of the Royal and Zoological societies. The great work of compiling the *Scientific Memoirs of Thomas Henry Huxley,* to which Sir Michael Foster and Professor E. Ray Lankester have given themselves, has been completed in four volumes, the last of which appeared in the early summer. The subject of evolution, its means and its meaning, has been the source of an unusual number of valuable publications. Chief among these is Baldwin's *Development and Evolution,* a volume of nearly 400 pages, which, although not strictly zoological, deals very ably with the subject of animal origins, and sets forth with great clearness the new theory of *othoplasy.* The presidential address of F. W. Hutton before the Australasian Association in 1902, somewhat enlarged, has been published under the title *The Lesson of Evolution,* and is intended to show that the whole end of evolution is designed to be the development of man's moral nature. The address of Professor H. E. Ziegler, *Ueber den derzeitigen Stand der Descendenz-lehre in der Zoologie,* before the German Naturalists at Hamburg in 1901, has also been enlarged and published. A rather remarkable book, entitled *The Primrose and Darwinism,* has been published in England anonymously, the aim of which is to show that Darwin's observations on the primrose were inaccurate and his conclusions erroneous, and therefore much of his argument in favor of natural selection is vitiated. An important pamphlet, entitled *Interpretación Dinamica de la Division Cellular,* by A. Gallardo, comes from Buenos Ayres and deals admirably with the mechanics of cell-division. As illustrating still further the cosmopolitan nature of science, mention should be made of the volume entitled *Response in the Living and Non-living,* by Jagadis Chunder Bose, of Calcutta. The author holds that the effects of poisons, depressants, stimulants, and fatigue are essentially the same in living and non-living matter. One of the most important publications of the year, and the one which has perhaps stirred up the most interest, is Bateson's *Mendel's Principles of Heredity: a Defence,* a volume of some 225 pages, in which Mr. Bateson very warmly supports the Mendelian as opposed to the Galtonian idea of "ancestral" heredity. A second volume, *Reports to the Evolution Committee of the Royal Society,* by Bateson and Miss Saunders, gives some of the experimental evidence which has led Bateson to his present position. Finally mention may be made of Professor C. F. Hodge's admirable little book, *Nature Study and Life,* a volume of over 500 pages, largely dealing with animals. It is without doubt the ablest and most sensible contribution to the nature study question that has yet appeared. For other zoological literature, see ENTOMOLOGY; ORNITHOLOGY.

ZOOLOGICAL SOCIETIES. The year 1902 was notable in the United States for the large number of meetings. Of foreign gatherings the following were the most important. The ninth meeting of the *Australasian Association for the Advancement of Science* was held at Hobart, Tasmania, January 8-16, under

the presidency of Capt. F. W. Hutton, whose address was on *Evolution and Its Teaching*. Professor W. B. Benham presided over the section of biology, and gave an interesting address on *Earthworms and Paleogeography*. The eleventh *Congress of Russian Naturalists and Physicians* was held at St. Petersburg early in January. The most important announcement was that the minister of public instruction had at last agreed not to oppose the formation of an association for the advancement of science, holding annual meetings. The meeting of the *German Association of Naturalists and Physicians* was held at Carlsbad, the fourth week in September, with the usual very large attendance. The *Royal Society* of London held its usual "conversazione" on May 14 and again in June, but the zoological exhibits were not specially noteworthy. The *Linnean Society* of London awarded its gold medal in May to Professor von Kölliker of Würzburg, the famous German zoologist. The seventy-third anniversary meeting of the *Zoological Society* of London was held April 29. The gold medal of the society has been awarded to Sir Harry Johnston for his zoological work in Central Africa, and the silver medal to Mr. E. W. Harper for his work in India. The meeting of the *British Association* was held at Belfast the third week in September, and though the attendance was not very large, the gathering was of unusual scientific interest. The zoological section (D) had for presiding officer Professor G. B. Howes, who took for the subject of his presidential address *The Morphological Method and Progress*, a most interesting review and summary of the revolution that has taken place in zoology in the past 28 years. There were reports received from eight committees, and 32 papers were presented. There were several papers on, and much discussion of, protective coloration and mimicry, and the influence of natural selection upon them. Several papers dealt with fishery questions and a number with embryological problems. One of the latter was by Mr. J. P. Hill of Sidney, describing the segmentation stages in the development of the egg of the Australian native cat (Dasyurus).

Turning now to American societies, we find a considerable number held very successful meetings during the year. The *New York Zoological Society* has issued its sixth annual report, which shows its affairs to be in a distinctly prosperous condition. It has acquired the aquarium in the Battery Park and has appointed C. H. Townsend, late of the United States Fish Commission, to be director. At the Zoological Park a new lion house has been erected and opened, and a veterinary staff has been established to secure scientific treatment of the animals and to study the causes and prevention of diseases. The *National Academy of Science* met in Baltimore in November, and among the papers presented were several dealing with zoological subjects, by Professors Agassiz, Brooks, and Osborn. The first general meeting ever held by the *American Philosophical Society* was held in Philadelphia early in April, with about 120 members in attendance. Of the papers presented, eight were zoological and several others were zoo-paleontological. One of the most important was Professor Ortmann's on the distribution of the fresh-water Decapods and its bearing on ancient geography. Another notable, though very brief, paper was that of Professor W. K. Brooks, *Is Scientific Naturalism Fatalism?*

American Association for the Advancement of Science.—The year 1902 will always be memorable in the annals of this organization because for the first time in its history it held two meetings, and though both were successful, the second or winter session was the most notable gathering of scientific men ever held in America. The summer meeting was held at Pittsburg, June 28 to July 3, and was attended by 431 members, the total membership at the close being about 3500. Of the 28 papers in zoology, a number were of very great interest, especially the presidential address of Professor C. S. Minot on *The Problem of Consciousness in Its Biological Aspects*. The conclusion of this notable paper was: The universe consists of force and consciousness. As consciousness by our hypothesis can initiate the change of the form of energy, it may be that without consciousness the universe would come to absolute rest. The address of President D. S. Jordan before section F was read (in his absence) by Professor C. H. Eigenmann, and was a full and interesting *History of Ichthyology*. Of the other papers, six dealt with insects and seven were zoo-paleontological. The association convened again in Washington, December 27 to January 3, and with it were affiliated no less than 23 other scientific societies of more limited scope. The attendance was all that could be desired, between eight hundred and a thousand scientists registering with some one or more of the various sections and organizations. But the sectional meetings were seriously interfered with in some cases through simultaneous meetings of some of the affiliated societies. Some 40 papers were presented before the section (or read by title). The vice-presidential address by Professor C. C. Nutting was on *Some Perplexities of the Systematist*.

American Society of Naturalists. American Morphological Society.—Both of

these organizations met at Washington during convocation week as affiliated societies with the American Association. The discussion before the naturalists was participated in by six of the leading scientists of America, and was on the question: "How can endowments be used most effectively for scientific research?" The address by President Cattell was an interesting résumé of the psychological characteristics of American men of science, the results of an original statistical plan. The programme contained more than 50 papers. W. J. Moenkhaus spoke on the *Individuality of the Maternal and Paternal Chromosomes in Hybrid Development*, a subject of great importance at a time when Mendel's law is causing so much discussion. W. Patten's paper on *The Structure of the Ostracoderms* dealt with a much debated question in vertebrate phylogeny. E. B. Wilson's papers are always listened to with eager interest, and the three given this year were favorably received; perhaps the most interesting was his *Notes on the Artificial Reversal of Asymmetry in Alpheus*. G. H. Parker's paper on *Reactions of Earthworms to Light of Different Intensities* was a valuable physiological report. Other interesting papers were those of Mayer, Kingsley, Grave, Dean, Conklin, Bristol, Reighard, and Holmes. The most important business transacted was the vote to change the name to the "Zoological Society of America." The *Naturalists of the Central States* and the *Zoologists of the Central States* also held business meetings in Washington during convocation week, but their programmes were merged in that of the Morphological Society.

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[*Page numbers are given in heavy-faced type.*]